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THE TAXONOMY AND BIOGEOGRAPHY OF THE *BLOETEI* GROUP OF THE GENUS *BAETURIA* STÅL, 1866 (HOMOPTERA, TIBICINIDAE)

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ABSTRACT

The *bloetei* group is proposed for a monophyletic group of 18 species of the genus *Baeturia* Stål, 1866. Fifteen species are described as new (*B. bilebanarai*, *B. bismarckensis*, *B. bloetei*, *B. boulardi*, *B. brandti*, *B. cristovalensis*, *B. gressitti*, *B. macgillavryi*, *B. manusensis*, *B. marginata*, *B. mendanai*, *B.mussauensis*, *B. papuensis*, *B. reijnhoudti* and *B. sedlacekorum*) and three species (*B. edauberti* Boulard, *B. maddisoni* Duffels and *B. rotumae* Duffels) are redescribed. *B. aubertae* Boulard, *B. efatensis* Boulard and *B. epiensis* Boulard are proposed as new synonyms of *B. edauberti* Boulard. A key to the males is provided and distribution maps are presented. The distribution of shared characters is discussed pending a future phylogenetic reconstruction. Biogeographic patterns of the *bloetei* group are related to the geologic history of the area, and these suggest an Outer Melanesian Arc dispersal.

INTRODUCTION

The cicada genus *Baeturia* Stål, 1866, is distributed throughout Maluku, New Guinea and the SW Pacific. The abundance of endemic species renders this genus a promising group for study of the historical biogeography of this geologically complex area.

As presently construed, *Baeturia*, is not a monophyletic taxon (de Boer, 1986), though two species groups within the genus have been recognized as such by phylogenetic analysis: the *B. nasuta* group and the *B. conviva* group. Taxonomic revisions of these groups, together with some preliminary speculations regarding historical biogeography, have been published by de Boer (1982, 1986).

This study presents the revision of a third monophyletic group of *Baeturia*, the *bloetei* group. This group comprises 18 species distributed from Timor and Maluku across northern New Guinea, the Bismarck archipelago, Solomon Islands and Vanuatu to Samoa and Tonga. This distribution pattern is very interesting, because it largely coincides with remnants of the historic Outer Melanesian Arc. the high number of endemic species, especially in the eastern part of this area of distribution, might contribute to a better understanding of the relations between the various remnants of this historic island arc.

Specimens belonging to the *bloetei* group have often been erroneously identified as either belonging to *B. conviva* Stål, *B. exhausta* (Guérin

Méneville) or *B. bicolorata* Distant. In Metcalf's catalogue (1963), both *B. conviva* and *B. exhausta* are recorded from Maluku, New Guinea, Bismarck archipelago and Solomon Islands, with *B. exhausta* extending to Samoa. *B. bicolorata* is recorded from Buru and New Guinea, including Papua (see also Myers, 1928). None of these species, however, belong to the *bloetei* group, which accounts for the large number of species described as new. In fact, *B. conviva* is restricted to Bacan and Obi islands, Maluku (de Boer, 1986) and *B. exhausta* is probably restricted to Maluku and possibly West New Guinea (unpublished). Some remarks concerning the distribution of *B. bicolorata* are made preliminary to the description of *B. bloetei* n. sp.

MATERIAL AND METHODS

The material examined in this study comes from the following collections and institutions:

AMNH	American Museum Natural History, New York.
AMS	Australian Museum, Sydney
BIN	Koninklijk Belgisch Instituut voor Natuurwetenschappen, Brussel
BPBM	Bernice P. Bishop Museum, Honolulu
BMNH	British Museum (Natural History), London
CAS	California Academy of Sciences, Department of Entomology, San Francisco
MNP	Muséum National d'Histoire Naturelle, Paris
Moul	Personal collection Dr M. S. Moulds, Greenwich, Australia
MZB	Museum Zoologicum Bogoriense, Bogor
NCSU	North Carolina State University Insect Collection, Raleigh
NhMW	Naturhistorisches Museum, Wien
NRS	Naturhistoriska Riksmuseet, Stockholm
RMNH	Rijksmuseum van Natuurlijke Historie, Leiden
SEM	Snow Entomological Museum, Lawrence, Kansas
TMB	Természettudomany Muzeum, Budapest
UZMK	Universitets Zoologiske Museum, København
ZMA	Instituut voor Taxonomische Zoölogie (Zoölogisch Museum), Amsterdam
ZML	Zoologiska Institutionen Zoologiska Museet, Lund
ZSM	Zoologische Staatssammlung, München

The following geographic sources have been used: Atlas van Tropisch Nederland (1938), The Times Atlas of the World (1968, 1985), "The Noona Dan Expedition 1961-62" (Petersen, 1966) and the "Official Standard names Gazetteer" of the United States Board on Geographical names, the volumes "British Solomon Islands and Gilbert and Ellice Islands" and "New Hebrides".

After overnight softening, male genitalia can be examined by pulling out the pygofer with a sharp needle inserted between the pygofer and the 8th abdominal segment. The aedeagus can be pulled out at the same time, by inserting the needle between the claspers.

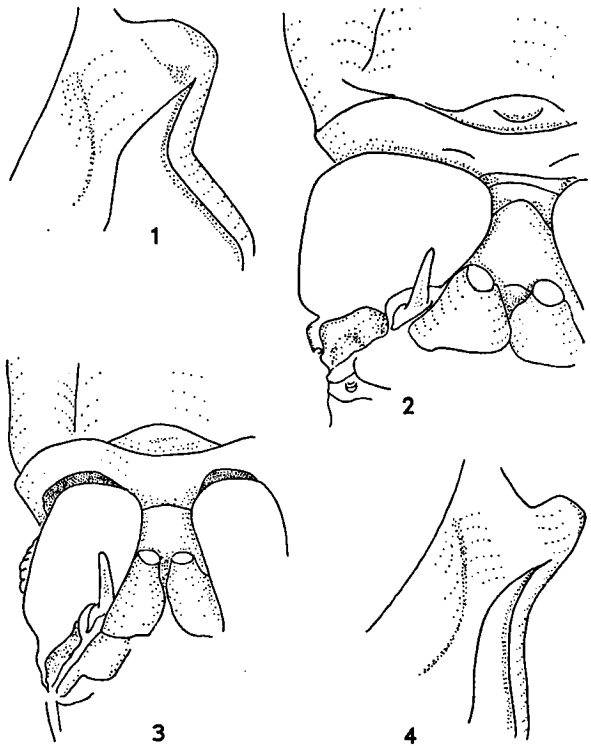
The ranges of body and tegmen lengths are based on all available specimens. Other measurements are based on ten specimens (if available), chosen at random, but always including the largest and smallest individuals.

PHYLOGENY

The monophyly of the B. bloetei *group*

The species of the *bloetei* group are very similar and can often only be separated by slight differences in clasper and pygofer shape.

However, the close external similarity does not establish the monophyly of the group, since most of the identified group characters either also occur in species outside the group, or are not shared by all members of the group. The broad, square male operculum can probably be regarded as synapomorphic for all species of the *bloetei* group. The distal part of this operculum is characterized by a long distal margin. Its lateral margin runs almost parallel to the body axis and rises abruptly from the angular distolateral crest around the lateral edge of the basal part of operculum (figs. 1, 2). In almost all other species of *Baeturia*, the lateral margin of the operculum rises more gradually from this angular distolateral crest and bends slightly mesiad, the distolateral edge of the operculum is shifted more mesiad and the distal margin is shorter. Due to this operculum shape, the tympanum becomes partly visible in ventral view (fig. 3, 4). In a monophyletic species group centred around *B. loriae* the male operculum is larger, triangular and slightly dome-shaped, as in species of the genus *Gymnotympana* Stål.



Figs. 1-4. 1-2. *Baeturia bloetei*, paratype: 1, detail lateral edge of operculum base; 2, operculum in ventral view. 3-4. *Baeturia conviva*: 3, operculum in ventral view; 4 detail lateral edge of operculum base.

Other synapomorphies for the *bloetei* group might possibly be found in the shape of pygofer lobes and clasper. The pygofer lobes have bluntly rounded, triangular shaped, lateral protuberances, that do not extend beyond the pygofer margin. Protuberances of the same shape can be found in *B. exhausta* and related species, but in these species the pygofer lobes are strongly bent inwards. In other species of *Baeturia* these protuberances are more elongate and extend backwards beyond the pygofer margin.

The claspers of *bloetei* group species are of a fairly uniform shape: broad at the base and slender, slightly bent down, towards the apex, with often a weak crest along the dorsal margin. Near its apex, the clasper is concavely incurved ventrally, the resulting cavity, henceforth called "clasper hollow", is fairly large compared to *Baeturia* species of other groups. The very straight clasper of *B. bloetei* and the strongly bent clasper of *B. bismarckensis* may have evolved from this more basic shape.

Infra-group relationships

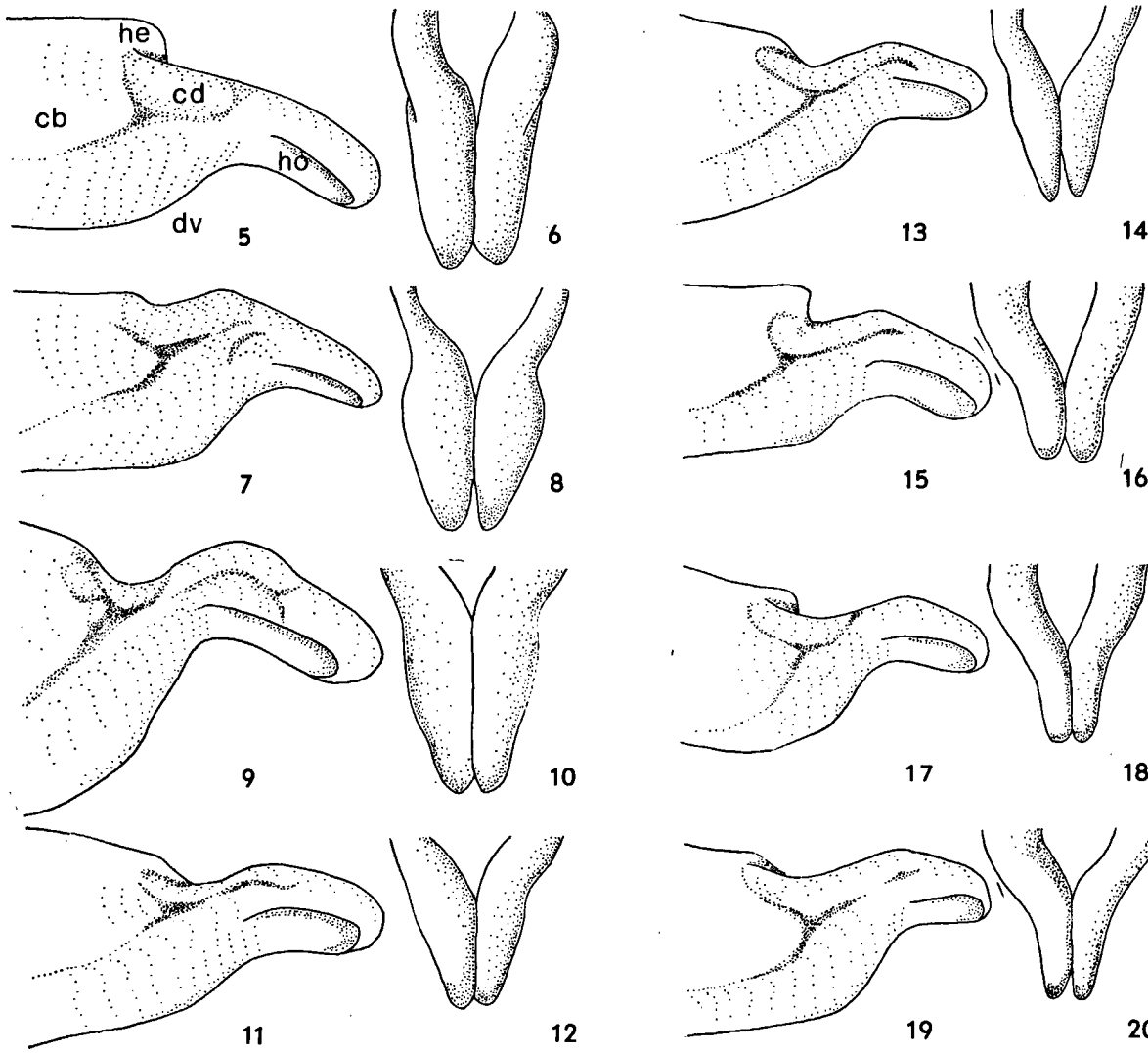
At the present state of investigation, with some major groups of *Baeturia* still unrevised and many species as yet undescribed, it is impossible to value the characters definitely as apomorphic or plesiomorphic. Therefore I have refrained from the construction of a cladogram and only tried to indicate possible groups within the *bloetei* group, on account of the possession of shared characters, which may be apomorphic or plesiomorphic. Some remarks will be made on the distribution of these characters outside the *bloetei* group.

Body colouring

The most eye-catching character, subdividing the *bloetei* group, is the presence or absence of coloured specks on the body. In speckled species, brown speckling concentrates on head and pronotum and in a middorsal band on the abdomen (figs. 162, 163). The abdomen of these species is further characterized by red hind margins of the abdominal segments and a lateroventral row of dark spots. These features are usually more distinct in males than in females.

The unspeckled species (figs. 160, 161) are usually larger and lighter ochraceous or greenish coloured. The male abdomen is more inflated, it seldom has its segmental hind margins reddened and lacks the lateroventral row of dark spots. Females of this group are often bicoloured, with head and thorax green, and abdomen ochraceous. *B. bloetei*, *B. macgillavryi*, *B. papuensis* and four of the Solomon species are unspeckled. All other species are, more or less intensely, speckled.

Unspeckled species occur in several other monophyletic species groups of *Baeturia*, though the speckled species form the majority. To complicate matters further, in *B. bismarckensis* and *B. maddisoni* both speckled and unspeckled



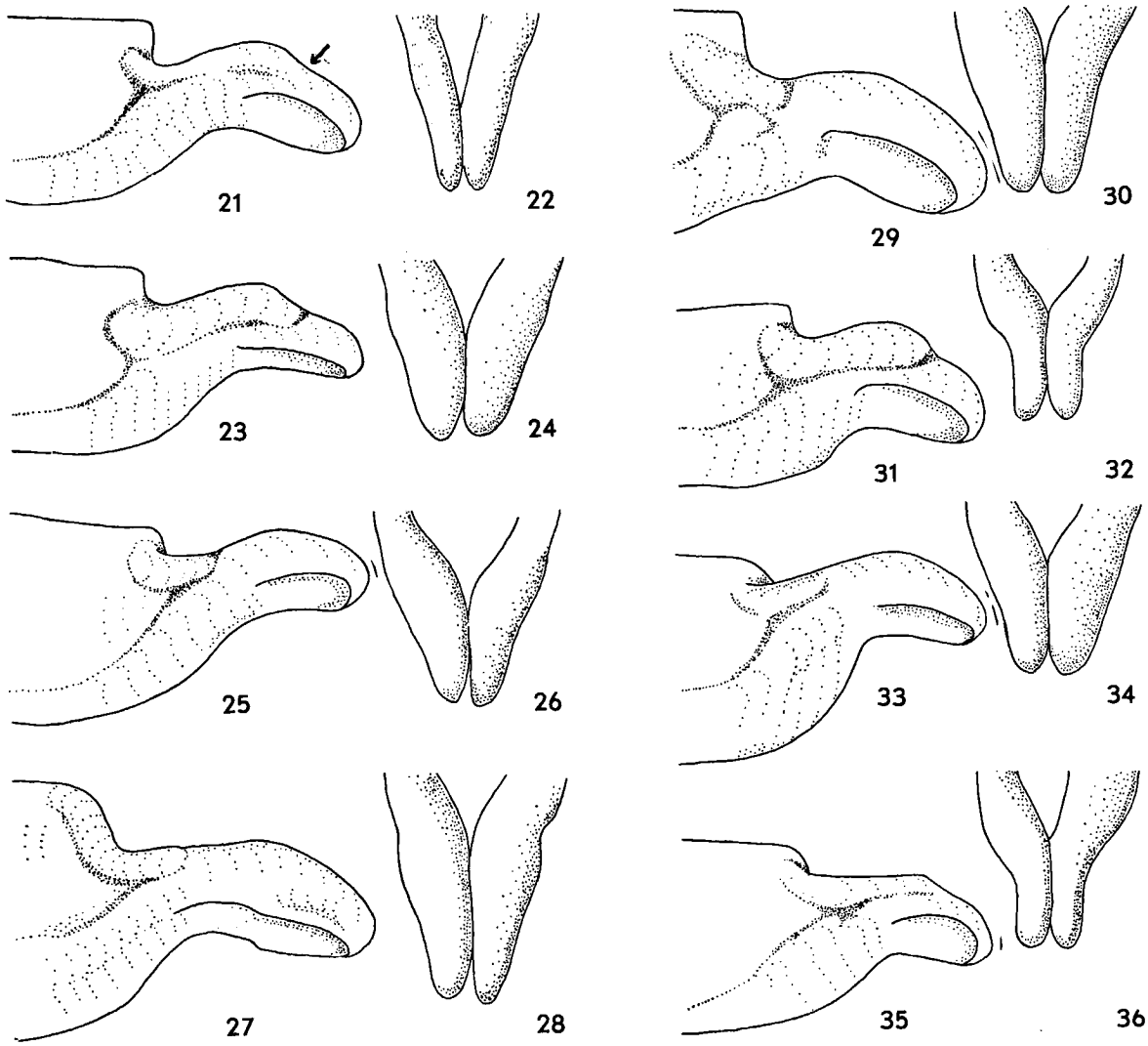
Figs. 5-20. Even numbers: clasper in dorsal view, odd numbers: clasper in lateral view. 5-6, *Baeturia bloetei*, holotype; 7-8, *Baeturia papuensis*, paratype; 9-10, *Baeturia bismarckensis*, paratype; 11-12, *Baeturia manusensis*, holotype; 13-14, *Baeturia mussauensis*, paratype; 15-16, *Baeturia brandti*, holotype; 17-18, *Baeturia sedlacekorum*, paratype; 19-20, *Baeturia cristovalensis*, paratype. Lettering: cb = clasper base; cd = crest along dorsal margin; dv = distoventral margin of clasper base; he = clasper heel; ho = clasper hollow.

specimens were found, so that the phylogenetic value of this character is doubtfull.

Shape of clasper

On the Solomon Islands however, the speckled and unspeckled species do form two distinct groups. The clasper of the four speckled species narrows abruptly to a slender apical part (in dorsal view). This clasper shape is also found in the likewise speckled *B. edauberti* (Vanuatu) and *B. maddisoni* (Samoa and Tonga). In all other species of the *bloetei* group, and in most other *Baeturia* species, the clasper in dorsal view is broader towards its apex (compare figs. 20 and 28).

The lateral aspect of the clasper provides additional characters for a possible subdivision of the *bloetei* group. In four species from the Solomon Islands: *B. brandti*, *B. sedlacekorum*, *B.*



Figs. 21-36. Even numbers: clasper in dorsal view, odd numbers: clasper in lateral view. 21-22. *Baeturia gressitti*, holotype; 23-24, *Baeturia bilebanarai*, paratype; 25-26, *Baeturia mendanai*, paratype; 27-28, *Baeturia marginata*, paratype; 29-30, *Baeturia boulardi*, holotype; 31-32, *Baeturia edauberti*, Espiritu Santo; 33-34, *Baeturia rotumae*, holotype; 35-36, *Baeturia maddisoni*, paratype.

reijnhoudti and *B. gressitti*, the clasper is very slender at its base; the clasper broadens to its base more proximad relative to the clasper heel, than in other species (compare figs. 17 and 19).

An extremely broad clasper base is found in *B. marginata*, *B. boulardi* and *B. rotumae*; the dorsal and ventral margins of the clasper base are parallel, but wider apart than in other species (compare figs. 25 and 27). In these three species, and in *B. bilebanarai*, *B. bloetei* and *B. macgillavryi* the apical part of clasper is smoothly rounded, while in other species the apical part is concave dorsally, marking the end of the ridge along the dorsal margin (fig. 21 arrow).

Finally, the three Bismarck species share a gradually widening clasper base, with the dorsal and ventral margins diverging in lateral view. (In other species of the *bloetei* group the dorsal and ventral margins of clasper base run almost parallel in lateral view). In these three

species and in *B. papuensis* and *B. cristovalensis* the clasper heel is rounded and inconspicuous, whereas it is very prominent and angular in other species of the *bloetei* group.

Shape of pygofer

B. brandti, *B. sedlacekorum*, *B. gressitti* and *B. edauberti* share a stout pygofer with a convex dorsal margin, continuous with a broad, dorsally rounded caudodorsal beak. This feature is also found in the *conciva* group (De Boer, 1986). All other species of the *bloetei* group have a more slender pygofer and a slender, more erect caudodorsal beak, with the dorsal margin of the pygofer almost straight and bending angularly into a straight caudodorsal beak.

Shape of aedeagus

B. papuensis and the three Bismarck species share a narrow oval aedeagus pore. In lateral view, the aedeagi of these species are almost straight at the apex. In all other species of the *bloetei* group, the aedeagus pore is much larger and slightly triangular, while the aedeagus in lateral view is strongly concave round its pore (compare figs. 47-48 with 57-58).

Both of these aedeagus types occur in other groups of *Baeturia*.

Female operculum

B. bloetei, *B. macgillavryi* and *B. papuensis* differ from other species of the *bloetei* group, by a larger and more angular female operculum, which curves towards the abdomen at its disto-lateral edge. *B. viridis* Blöte and *B. bicolorata* Distant also possess an enlarged, though often more rounded female operculum. In most other *Baeturia* species the female operculum is much smaller and usually sickle-shaped and erect.

BIOGEOGRAPHY

In the tertiary, as a result of the northward movement of the Australian continent, two island arcs, the Inner and Outer Melanesian Arcs, were formed at the interaction zône of the Australian and Pacific plates. Later, these arcs were fragmented, changed relative positions, and collided in the late Miocene or early Pliocene in the New Guinean region. For a more detailed description of these events, the reader is referred to Hamilton (1979), Holloway (1979), Coleman (1980) and Crook (1981).

It is hypothesized, that these arcs formed two separate routes of dispersal for the South-east Asian and the Australian biotas to invade Melanesia and Polynesia. The distribution pattern of the *bloetei* group becomes particularly interesting, when viewed in the light of this island arc theory. The species of this group are distributed from Maluku and Timor, across the northern parts of Irian Jaya and Papua New Guinea (probably including the Papuan peninsula), the Bismarck archipelago and Admirality Islands, Solomon Islands, Vanuatu, Rotuma and north Tonga to American- and Western Samoa.

The greater part of this distribution consists of remnants of what once formed the Outer Melanesian Arc, which included the coastal mountain range of New Guinea, the Bismarck archipelago, Solomon Islands, Vanuatu and Fiji (Hamilton, 1977; Holloway, 1984). Hamilton considers north Maluku as part of the Pacific Cordillera a western extension of this arc. The geological origin of the Huon and Papuan peninsulas is still unclear, though the Papuan peninsula is generally regarded as an outer arc fragment that has long been isolated from other parts of New Guinea by a deep sea barrier, the Aure Trough. The Tonga chain, which rifted from the Lau-Tonga ridge at the opening of the Lau basin, might have been located near, or attached to the Norfolk-New Caledonia ridge and, as the age of vulcanic outcrops on 'Eua suggests, is possibly of Inner Melanesian Arc origin (Ewart, 1988). The eastward decreasing age of the Samoan islands suggests a "hot spot" origin. This however is in contradiction with a presumed stable distance between Samoa and the Tonga ridge (Ewart, 1988).

No representatives of the *bloetei* group were found on Tjendrawasih (Vogelkop peninsula of New Guinea) or on the Fiji islands.

Comparably, the cicada genus *Diceropyga*, which is otherwise widely distributed from Maluku, all over New Guinea, to the Solomon Islands, is completely absent on Tjedrawasih (Duffels, 1977). On the other hand, Tjendrawasih is regarded as an area of endemism for other groups of Cicadidae such as *Rhadinopyga* (Duffels, 1985, 1986) and *Arfaka* (De Jong, pers. comm.) Geologically, the Vogelkop area has a somewhat isolated position with regard to other parts of New Guinea. It is widely accepted that the Vogelkop rotated northward in the late Neogene, to up to 90° from a more southern position near the edge of the Australian plate, so that only the northern part of Vogelkop would have formed part of the Outer Melanesian Arc.

An explanation for the absence of *Baeturia* on Fiji is provided by Duffels (1988) and Ewart (1988). The Outer Melanesian Arc extended eastward as the Vitiaz arc, including Vanuatu, Fiji and Tonga, of which the present day Vitiaz trench might possibly be the subduction site. Rotuma too formed part of this trench-seamount system. About 3 My. ago the Lau basin opened, by which Fiji rifted away from the Tonga chain and became isolated from the Vitiaz arc. *Baeturia* must have reached Tonga recently, after this event, but before the connection between Rotuma and Tonga, along the Vitiaz trench lineament, broke up.

The two subgroups, that on account of clasper shape can be recognized within the *bloetei* group east of the Bismarck archipelago, suggest two separate invasions of *Baeturia* in this area. These two subgroups show strikingly similar distribution patterns on the Solomon Islands (compare figs. 99 and 124) and indicate a sub-division between a northern arc along Malaita and San Cristobal and a southern arc along the New Georgia group and Guadalcanal for both subgroups.

The great similarity among the various species of the *bloetei* group, suggests their recent evolution within the Outer Melanesian Arc. The occurrence of only three species on Maluku and New Guinea seems to support this view. Other groups of *Baeturia* have a number of clearly distinct species in these areas.

B. papuensis from Papua New Guinea and the three Bismarck species seem to form a third subgroup. The Bismarck archipelago is recognized as an area of endemism for the *Diceropyga obliterans* group (Duffels, 1986). This suggests a more ancient isolation of these islands relative to other parts of the Outer Melanesian Arc.

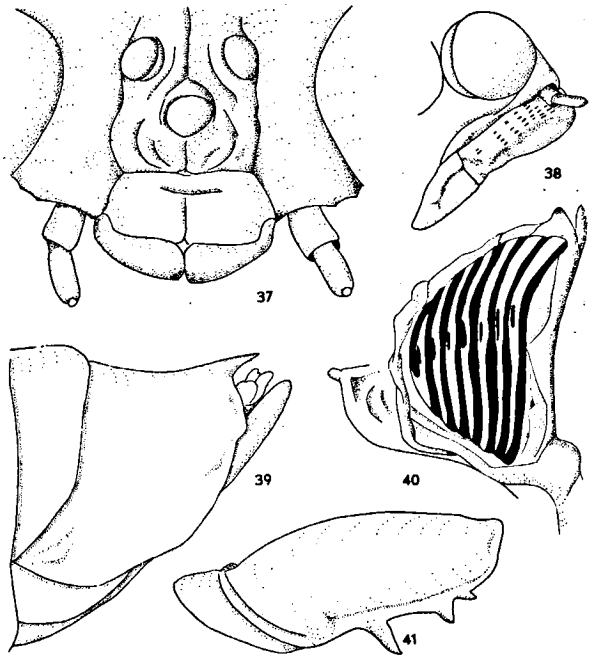
TAXONOMY

Description of the B. bloetei *group*

Body of males either light brown to reddish brown with brown speckling concentrated on the head, thorax, and dorsal parts of abdomen, or ochraceous to greenish and unspeckled. Abdomen strongly inflated. Segmental hind margins, especially in speckled species, often orange-red. Male abdomen of speckled species further characterized by a lateroventral row of dark spots on segments 3 to 7 or 8. In unspeckled species, these spots are often recognizable as unpigmented patches. Abdomen in males, depending on its inflation 1.2-2.0 x as long as head and thorax. Male tegmina 0.9-1.2 x as long as body length.

Females of speckled species light brown to castaneous, of unspeckled species often bicoloured: head and thorax green, and abdomen ochraceous, or otherwise castaneous-brown. Females much shorter than males, because of a shorter, uninflated abdomen. Most females with head and thorax more robust, longer, and broader than in males. Female abdomen 0.8-1.2 x as long as head and thorax. Female tegmina usually slightly longer than those of males, 1.2-1.5. x as long as body length.

Head (fig. 37): Postclypeus distinctly protruding beyond vertex lobes. In dorsal view broadly rounded, almost flattened at anterior margin and nearly oblong-shaped. Postclypeus 1.6-2.9 x as broad as long and 0.5-0.7 x as broad as distance between eyes, strongly vary-



Figs. 37-41. 37-38, *Baeturia bismarckensis*: 37, head in dorsal view; 38, head in lateral view. 39-41. *Baeturia bloetei*: 39, female genitalia in lateral view, paratype; 40, tymbal in lateral view, paratype; 41, fore femur.

ing within individual species. Postclypeus not swollen in lateral view (fig. 38). Head 0.7-0.8 x as wide as pronotal collar and only slightly narrower than anterior width of pronotum. Distance between lateral ocelli 0.6-1.5 x as long as distance between eye and lateral ocellus. Eyes 0.5-0.9 x as wide distance between eyes. Head length, except for *B. mussauensis*, in general slightly shorter than distance between eyes. Head 2.3-2.8 x as wide as distance between eyes.

Thorax: Pronotum with two pairs of deep oblique fissures. Pronotal collar angularly widened at lateral corners. Pronotum 0.4-0.5 x as long as width of pronotal collar. In speckled species, speckling often concentrated in a medial band and on pronotal collar, both these areas sometimes slightly reddish. Fissures generally unspeckled. Mesonotum often more greenish brown with two pairs of darkened spots along pronotal collar. Speckling, if present, usually concentrated in pairs of medial and lateral bands, diluted towards cruciform elevation. Mesonotum 0.7-0.8 x as long as width of pronotal collar.

Legs: Fore femur (fig. 41) with row of three pointed spines, diminishing in length towards tibia.

Tegmina and wings: Hyaline. Tegmen with 8, wing with 6 apical areas. Venation ochraceous or greenish.

Tymbal organs (fig. 40): With seven sclerotized ridges spanning the tymbal, from dorsal to ventral margin. Most proximal ridge narrowing considerably towards ventral margin and only just reaching it. A short eighth ridge, close to proximal tymbal margin, running from dorsal to about halfway tymbal. Seven short intercalary ridges form a band across tymbal.

Opercula: Basal part of operculum vaulted, and with distinct rectangular crest around its distolateral edge. Distal part of male operculum very broad and flat against body, angular, almost oblong-shaped and completely covering tymbal cavity in ventral view. Lateral margin rising abruptly from distolateral crest of basal part (fig. 1) and running almost parallel to body axis towards anterior margin of abdominal segment 2. Distal margin of operculum rather long and straight, recurved towards base of meracanthus at angular distomedial edge. Opercula widely separated medially. Meracanthus reaching to about halflength the operculum. Distal part of female operculum much shorter than that of male, rudimentary and sickle-shaped, distal margin broadly rounded. Female operculum larger and more angular in the New Guinean and Moluccan species.

Male genitalia: Pygofer either very stout and broadly rounded dorsally, with caudodorsal beak strongly bent and forming an almost right angle with caudal margin of pygofer, or more slender with nearly straight dorsal margin and a slightly erect caudodorsal beak. Apex of caudodorsal beak either truncate or rounded, to almost pointed, but variable within most species. Lateral pygofer lobes with bluntly rounded lateral protuberances, not extending beyond pygofer margin. Claspers rather straight, only slightly bent down towards apex, usually with a

weak crest along proximal part of dorsal margin. Clasper hollow fairly large in lateral view. Margin of clasper hollow forming an angle of 90° or more with distoventral margin of clasper base. Dorsally, clasper widening abruptly to its base in most species. The resulting right angle at dorsal clasper base is henceforth termed the "clasper heel". Aedeagus S-curved with two small lateral lobes at base of curvature. Aedeagus in lateral view broad at base of curvature, but gradually narrowing towards apex and pointed apically.

Female genitalia: Caudodorsal beak nearly always pointed at apex, though truncate in *B. edauberti* Ovipositor sheaths reaching just beyond apex of caudodorsal beak (fig. 39).

Key to the males.

The females of this genus are very uniform and usually can not be identified to species level. Species specific characters of females, if present, are discussed in the species descriptions.

1 a. Clasper in dorsal view narrow at apex and abruptly widening towards base (fig. 16)..... 2
b. Clasper in dorsal view broader at apex and gradually widening towards base (fig. 6)..... 7
2 a. Pygofer very stout, dorsal margin rounded. Caudodorsal beak strongly bent down (fig. 85) 3
b. Pygofer slender, dorsal margin straightened. Caudodorsal beak slightly erect (fig. 92) 5
3 a. Clasper with prominent and broad dorsal crest, ventral base broad (fig. 31). Operculum broader than long (fig. 143). Caudodorsal beak in dorsal view very broad and truncate, slightly bicuspidate (fig. 141). Vanuatu..... *B. edauberti*
b. Clasper with weak dorsal crest, ventral base slender (fig. 17). Operculum often square-shaped (fig. 82). Caudodorsal beak in dorsal view less broad, rounded or truncate, but not bicuspidate..... 4
4 a. Apical part of clasper very slender in lateral view (fig. 17). Gizo, Guadalcanal, Rendova..... *B. sedlacekorum*
b. Apical part of clasper broad in lateral view (fig. 15). Buka, Bougainville, Choiseul, Fauro, Kolombangara, Shortland, Vella-Lavella ..... *B. brandti*
5 a. Apical part of clasper very slender in lateral view; ventral clasper base slender (fig. 17). Operculum often square-shaped (fig. 94). Santa Ysabel, Malaita ..... *B. reijnhoudti*
b. Apical part of clasper quite broad in lateral view; ventral clasper base broad (fig. 19). Operculum elongated, oblong shaped..... 6
6 a. Clasper uprighted; clasper heel rounded, almost inconspicuous (fig. 19). Ulawa, San Christobal..... *B. cristovalensis*
b. Clasper stretched; proximal half of dorsal margin very straight; distinct rectangular dorsal heel (fig. 35). Tonga, Samoa..... ..... *B. maddisoni*
7 a. Aedeagus, with small oval pore, in lateral view almost straight at apex (figs. 57, 58). Clasper heel rounded and bent inwards, almost inconspicuous..... 8
b. Aedeagus, with broad almost triangular pore, in lateral view strongly concave at apex (figs. 47, 48). Distinct right angled clasper heel 11
8 a. Clasper broadening at base, dorsal and ventral margin of base slightly diverging in lateral view (fig. 9); clasper straight or slightly bent down to apex. Body often brown speckled..... 9
b. Clasper not broadening at base, dorsal and ventral margin parallel in lateral view; clasper strongly bent down to apex (fig. 7). Body unspeckled. Papua New Guinea ..... *B. papuensis*
9 a. Clasper bent as in fig. 9; margin of clasper hollow forming a right angle with distoventral margin of clasper base. Bismarck archipelago.... *B. bismarckensis*
b. Clasper stretched; margin of clasper hollow forming a wide angle with ventrodistal margin of clasper base (fig. 11) 10

10 a. Head shorter than vertex width between eyes; distance between lateral ocelli larger than width of frontal ocellus. Caudodorsal beak truncate at apex. Body length 16.3-18.9 mm. Manus Isl. *B. manusensis*

b. Head longer than vertex width between eyes; distance between lateral ocelli smaller than width of frontal ocellus. Caudodorsal beak often rounded at apex. Body length 18.9-20.3 mm; Mussau Isl..... ..... *B. mussauensis*

11 a. Body brown speckled, especially on head and pronotum..... 12

b. Body unspeckled..... 13

12 a. Body slightly speckled. Clasper long, dorsally smoothly rounded; clasper hollow large; no crest along dorsal clasper margin; clasper heel very prominent and angular (fig. 29). Vanua-Lava *B. boulardi*

b. Body intensely speckled. Clasper quite short, with straight dorsal margin; clasper hollow short; weak dorsal crest along clasper margin; clasper heel rounded (fig. 33). Rotuma Isl..... *B. rotumae*

13 a. Clasper straight. (fig. 5)..... 14

b. Clasper slightly bent down about halfway dorsal margin 15

14 a. Aedeagus with large and broad pore, broad between basal lobes (fig. 48). Northern coastal mountain ranges of western New Guinea (Irian Jaya), Biak, Japen ..... *B. bloetei*

b. Aedeagus with narrow pore, narrow between basal lobes (fig. 51); Maluku, Timor..... *B. macgillavryi*

15 a. Apical part of clasper concave at dorsal margin, marking the end of distinct dorsal crest (fig. 21) 16

b. Apical part of clasper smoothly rounded; dorsal crest very short or very weak (fig. 25) 17

16 a. Pygofer stout, rounded dorsally. Caudodorsal beak bent down. Clasper hollow broad in lateral view; clasper base slender ventrally (fig. 21). Buka, Bougainville ..... *B. gressitti*

b. Pygofer slender, dorsal margin straight. Caudodorsal beak slightly erect. Clasper hollow narrow elongate in lateral view; clasper base robust ventrally (fig. 23). Bougainville, Treasury, Choiseul, Santa Ysabel..... *B. bilebanarai*

17 a. Clasper short; clasper hollow short and broad in lateral view (fig. 25). Caudodorsal beak often pointed at apex. Guadalcanal, Gizo Florida, Russel, Savo, Vella-Lavella..... *B. mendanai*

b. Clasper very long and very broad at base; margin of clasper hollow ventrally elongate, forming a rim around clasper hollow (fig. 27). Florida, Malaita .... *B. marginata*

Description of the species of the B. bloetei *group*

Baeturia bloetei n. sp.
(Figs. 1-2, 5-6, 39-48, 52, 160-161)

Baeturia bicolorata; Blöte, 1960: 72, fig. 24 (non Distant, 1892).

Specimens of this species were identified as *B. bicolorata* Distant, by Blöte (1960). Though Blöte does not give a full description, he compares the species with *B. brongersmai*, and depicts the genitalia of a male from Hollandia.

The holotype of *B. bicolorata* is a female from Fly river, south New Guinea. This specimen is characterized by its bicoloration (head and thorax green, abdomen ochraceous) and a rather large operculum. The females of *B. bloetei* share these characters with *B. bicolorata*. Males from the same locality as the female holotype of *B. bicolorata*, and most probably belonging to this species, do not belong to the *bloetei* group. *B. bicolorata* seems restricted to south New Guinea and will be described in a future publication.

Types: Holotype: "G. den Hoed, Ned. Nw. Guinea (print) Dojo, 4-58 (written)"; "no. 12" (written); "collectie W. H. Gravestein" (print); "*Baeturia bicolorata* Dist. Det. Gravestein 1959" (written), ♂, ZMA. Paratypes: IRIAN: NEW GUINEA (W): same data as holotype, 7 ♀, ZMA; Dojo, 100 m. 9.vi.1957, R. T. Simon Thomas leg., 1 ♀, RMNH; Hollandia, i. 1937, W. Stüber, 1 ♂, BMNH; Hollandia, 4m, 4.vii.1938, Neth. Ind. Amer. New Guinea Exp., 1 ♀, RMNH; Hollandia, 3.iv.1945, E. L. Troughton, 1 ♀, AMS; Hollandia, 250 ft, v. 1945, H. Hoogstraal, 1 ♂, NCSU; Hollandia, 23.ii.1952, L. D.

Brongersma, 1♂, 3♀, RMNH; same data but 22.ii.1952, 2♀, RMNH; Hollandia, i.1954, L. v. d. Hammen, 2♀, RMNH; Hollandia, 0-10 m, 9.x.1943, L.D. Brongersma, 2♀, RMNH; same data but 60 m, 17.x.1954, 4♀, RMNH; same data but sea level, 5.xi.1954, 1♀, RMNH; same data but 18-21.xi.1954, 1♂ det. *Bicolorata*, RMNH; Hollandia, 0-10 m, 16-21.x.1954, L. D. Brongersma & L. B. Holthuis, 1♂, 2♀, RMNH; Hollandia Dok vii, 18.i.1956, L. D. Brongersma, 1♀, RMNH; Hollandia, 19.i.1957; G. F. Mees, 1♀, RMNH; Hollandia, iv.1957, G. den Hoed, 1♂ det. *bicolorata*, ZMA; same data but ix.1956, 1♀, RMNH; same data but ii & iii. 1957, 2♀ det. *bicolorata*, ZMA; Hollandia area, west Sentani, Cyclops, 50-100 m, 16-18.vi.1959, T. C. Maa, 4♀, BPBM; same data but 18.vi.1959, 1♂, 5♀, 22-24.vi.1959, 8♂, 8♀, 25.vi.1959, 1♂, 6♀, all BPBM; Hollandia, 28.ii.1960, T. C. Maa, 1♂, 1♀, BPBM; Hollandia, i-vii. 1962, R. W. Schmidt leg., 1♀, ZMA; Hollandia Binnen, 20-50 m. 27.vii. 1959, T. C. Maa, 1♂, BPBM; same data but 25-28.ii.1960, 1♀, BPBM; Hollandia binnen, 25 m, 16.x.1957, J. L. Gressitt, 3♀, BPBM; same data but 100 m, 31.x.1958, 1♀, BPBM; Jayapura, 12.xii.1984, H. van Mastrigt, 1♀, ZMA; same data but 8.viii.1985, 1♀; 10.x.1985, 1♀; 10m, 10.i.1986, 2♀; 10 m, 18.iv.1987, 1♀, all ZMA. Other material: IRIAN: NEW GUINEA (W): Dtsch N Guinea, 1♂, ZML; Z. Nieuw Guinea, 17.ix.1912, Versteeg, 1♂, ZMA; Genjam 40 km W Hollandia, 100-200m, 1-10.iii.1960, T. C. Maa, 17♀, BPBM; Hollandia, 14.vii.1938 Neth. Ind.-Amer. New Guinea Exp. 1938-39, leg. L. J. Toxopeus, 1♂, 1♀, both *bicolorata* det. Blöte, MZB; same data but vii.1938, 1♂ *bicolorata* det. Blöte, MZB; Hol Maffen 22 km E Sarmi, 18.vii.1959, T. C. Maa, 8♀, BPBM; same data 1♀, ZMA; Humbold bay Hollandia, iv.1936, L. E. Cheesman, 2♂, 4♀, BMNH; Humbold bay distr., 1937, W. Stüber, 2♀, BMNH; Humbold bay Bewani Mts., ix. 1937, W. Stüber, 3♀, BMNH; Ifar lake Sentani, viii.1937, L. E. Cheesman, 2♀, BMNH; Ifar, 1955, R. van Lutterveld, 2♀, RMNH; Ifar, 22.iv.1957, G. F. Mees, 3♀, RMNH; Ifar, xii.1957, G. den Hoed, 1♂ det. *bicolorata*, 4♀ det. *bicolorata*, ZMA; Ifar Cyclops Mts., 300-500 m, 23-25.vi.1962, J. L. Gressitt & J. Sedlacek, 3♀, BPBM; Joka lake Sentani, 21.x.1954, L. D. Brongersma & L. B. Holthuis, 1♀, RMNH; Joka lake Sentani, 22.x.1954 L. D. Brongersma, 2♀, RMNH; Kawakiet Star range [Kawakit S of Katem, see Van Royen, 1959], 25 m, 12.ix.1959, Neth. New Guinea Exp. 1959, 1♂, RMNH; Kota Baru Hollandia, 25-28.vi.1962, N. Wilson, 1♂, BPBM; Kota Nica, 9.xii.1957, R. T. Simon Thomas, 1♀, RMNH; same data but 18.xii.1957, 1♂, 1♀, RMNH; Kota Nica Hollandia, 25-28.ii.1960, T. C. Maa, 1♂, 3♀, BPBM; Mt. Lina Cyclops Mts., 3500 ft. iii. 1936, L. E. Cheesman, 2♀ det. *bicolorata*, BMNH; Mamberamo [Memberamo] Alb. bivak. N. N. Guinea Exp. 1926, W. Docters v Leeuwen, 1♀, MZB; Maffin Bay, 28.v.1944, E. S. Ross, 1♂, CAS; same data but 12, 13, 21.vi.1944 &15.vii.1944, 4♂, 7.vi, vii, 15, 22, & 31. viii.1944, 8♀, all CAS; Motor bivak, viii.1926, N. N. Guinea Exp. 1926, W. Docters v Leeuwen, 1♂, 4♀, MZB; same data but Motor bivak, Meervlakte, 2♂, 22♀, MZB; Sarmi, 11.iii.1958, R. T. Simon Thomas, 1♂, RMNH; Sarmi 20-23.vii.1959, T. C. Maa, 1♂, BPBM; Sentani, 90+ m, 15.vi.1959, T. C. Maa, 3♂, 3♀, BPBM; same data 1♂, ZMA; same data but 16.iv. 1959, 2♀, BPBM; Sentani, 100 m, 15.v.1959, Gressitt & Maa, 2♀, BPBM, Sentani st. 51, 18.iii.1973, X. Misonne, 1♀, BIN; Sentani, 5.viii.1985, H. v. Mastrigt, 2♀, ZMA; Siera riv. W of Oeta [Uta], S coast, 16.vi.1941, E. Lundquist, 2♀ MZB; same data but 18.vi.1941, 1♀; 19.vi.1941, 1♂, 1♀, all MZB; Tor river mouth, 4 km E Hol Maffen, 1 & 2.vii.1959, T. C. Maa, 3♂, 3♀, BPBM; Transito Sentani, 100-150 m, 27.iii.1973, S. Adisoemarto, 2♀, MZB; same data but Dulhair, 1♀, MZB; same data but 100-200 m, 29.iii.1973, S. Adisoemarto, 1♀, MZB; Waris, 450-500 m, several dates viii.1959, T. C. Maa, 8♂, 14♀, BPBM; Waris, 450-500 m, 23-26.vii.1959, T. C. Maa, 1♂, 1♀, ZMA; PAPUA NEW GUINEA: NEW GUINEA (NO): Aitape, x-xi.1936. L. E. Cheesman, 2♀ det. *bicolorata*, BMNH; Bainyik, 17.xii.1963, D. K. Mc Alpin, 3♀, AMS: Kaiserin Augusta River (Sepik river) Hoofdbivak, K. G. (K. Gjellerup), 1♂, 1♀, RMNH; Maprik, 14.x.1957, L. J. Gressitt, 3♀, BPBM; Maprik, several dates 19-28.x.1957, J. Smart, 10♀, BMNH; Maprik, 160 m, 29.xii.1959-17.i.1960, T. C. Maa, 1♀, BPBM; Sepik Maprik area, 160 m, 24.viii.1957, D. Elmo Hardly, 1♂, BPBM; same data but 23, 24, 29.viii.1957, 3♀, BPBM; Negian vill. Torricelli Mts. 17-24.xi.1958, W. W. Brandt, 1♂, BPBM; BIAK: Schouten Ids., i.1955, L. D. Brongersma, 1♀, RMNH; JAPEN: Japen I. Schouten Gp., 16-19.iii.1945, E. L. Troughton, 1♀, AMS; Saroei (I Japen), 6.iii.1929, Prince Léopold, 1♂, BIN; Seroei, Japen, 11 & 12.v.1952, W. J. Roosdorp, 2♀, RMNH; Seroei, Japen, 11.v.1952, Leiker, 1♀, RMNH; Japen I, Serui (Seroei), 14.xi.1962, H. Holtman, 1♀, BPBM.

B. bloetei is a fairly large sized unspeckled species. The males are very broad across pronotal collar and can be recognized by a slender and straightened clasper, one pair of dark lateroventral spots on 3rd abdominal segment and a broad aedeagus with a large pore. Females smaller than males and on average with slightly narrower head and thorax.

Description

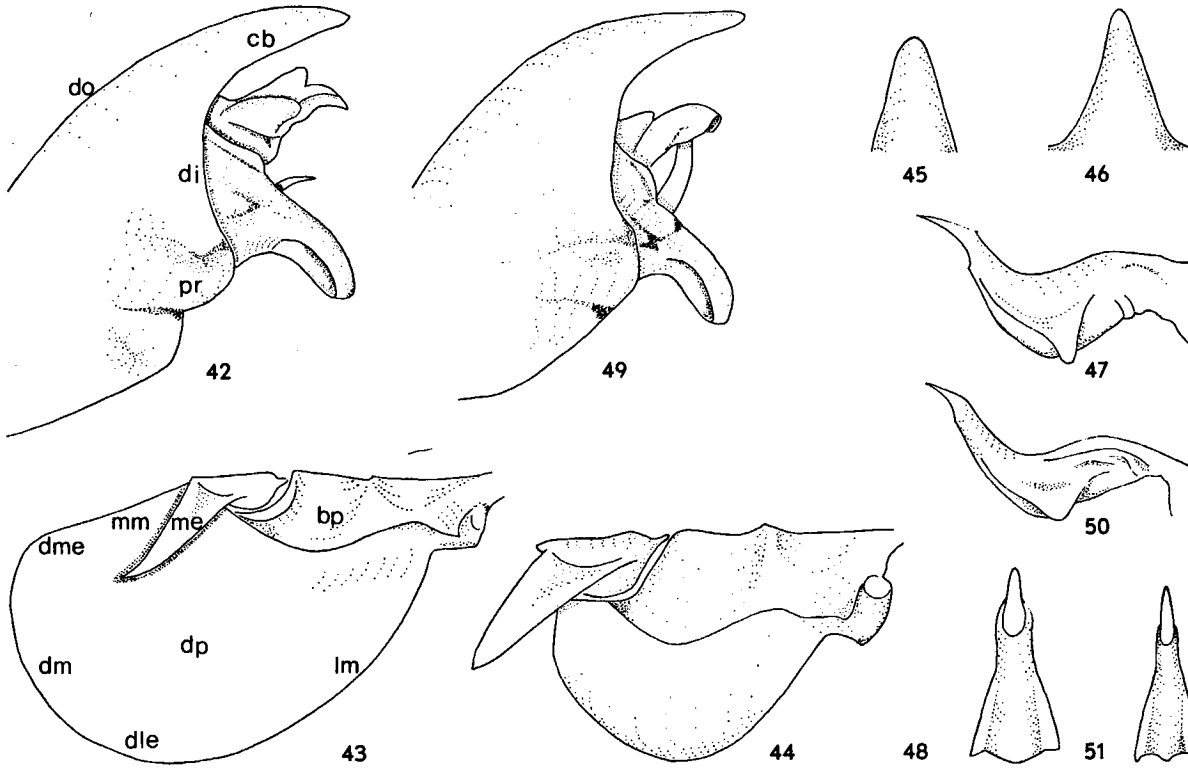
Body of males light yellowish brown, though sometimes entirely light olive green. Females felty and often bicoloured, with green head and thorax and ochraceous abdomen, otherwise

ochraceous brown or entirely green (figs. 160-161).

Opercula: Male operculum (fig. 43) with oblong distal part. Lateral and distal margins straight, distolateral edge broadly rounded. Distomedial edge very angular. Female operculum (fig. 44) larger, more angular and less erect than common for the genus *Baeturia*. The straight lateral margin rising abruptly, almost rectangular from the distolateral crest of basal part and runs parallel to body axis, as in male opercula of this group. Distolateral and distomedial edge of female operculum very angular and distal margin almost straight. Female operculum curving towards abdomen at distolateral edge.

Abdomen: Male abdomen yellow-green or light brown. Segmental margins ochraceous or greenish. Most specimens have a dark lateroventral spot on both sides of abdominal segment 3 and sometimes a vague lateroventral row of unpigmented patches on segments 4-7. Male abdomen 1.2-1.6 x as long as head and thorax. Female caudodorsal beak (fig. 46) triangular and pointed at apex.

Male genitalia: Pygofer in lateral view (fig. 42) slender, the almost straight dorsal margin bending angularly into a slender, slightly erect caudodorsal beak. Caudodorsal beak (fig. 45) either truncate or rounded at apex and shorter than claspers. Distal margin of pygofer almost straight between lateral protuberances and base



Figs 42-51. 42-48. *Baeturia bloetei*: 42, pygofer in lateral view, paratype; 43, male operculum, Ifar; 44, female operculum, paratype; 45, male caudodorsal beak, paratype; 46, female caudodorsal beak, paratype; 47, aedeagus in lateral view, paratype; 48, aedeagus from behind, paratype. 49-51. *Baeturia macgillavryi*: 49, pygofer in lateral view, holotype; 50, aedeagus in lateral view, paratype; 51, aedeagus from behind, paratype. Lettering: bp = basal part of operculum; cb = caudodorsal beak; di = distal margin of pygofer; dle = distolateral edge of operculum; dm = distal margin of operculum; dme = distomedial edge of operculum; do = dorsal margin of pygofer; dp = distal part of operculum; lm = lateral margin of operculum; me = meracanthus; mm = medial margin of operculum; pr = protuberance on lateral lobe of pygofer.

of caudodorsal beak. Triangular protuberances on lateral pygofer lobes very well developed, broadly rounded and often slightly concave dorsally. In some specimens, the ventral pygofer margin runs in a straight line towards apex of protuberance (fig. 49), in others this margin bends upwards before reaching distal end of pygofer lobe (fig. 42). Clasper in lateral view (fig. 5) very straight to apex and with distinct angular dorsal heel. Apical part of clasper smoothly rounded dorsally. A very short, laterally outbending, crest runs partly along dorsal margin near clasper base. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Dorsal and ventral margin of clasper base parallel in lateral view. Clasper in dorsal view (fig. 6) broadly rounded at apex and gradually broadening to base. Aedeagus pore extremely large and broad, pointed at apex (fig. 48). Aedeagus very broad between basal lobes. Aedeagus in lateral view (fig. 47) strongly concave towards apex; basal lobes narrowly rounded.

Measurements: Body length ♂: 22.3-30.8 mm ($\bar{x}$ 25.5 mm ± 1.4) ♀:16.0-23.5 mm ($\bar{x}$ 20.6 mm ± 1.3); tegmen length ♂: 22.0-29.6 mm ($\bar{x}$ 25.7 mm ± 1.7) ♀: 22.4-28.5 mm ($\bar{x}$ 26.4 mm ± 1.4); pronotum length ♂: 2.8-3.7 mm ($\bar{x}$ 3.2 mm) ♀: 2.8-3.5 mm ($\bar{x}$ 3.1 mm); mesonotum length ♂: 4.4-6.4 mm. ($\bar{x}$ 5.5 mm) ♀: 4.2-5.8 mm ($\bar{x}$ 5.2 mm); head width ♂: 4.6-5.6 mm ($\bar{x}$ 5.1 mm) ♀: 4.6-5.5 mm ($\bar{x}$ 4.9 mm); width pronotal collar ♂: 6.3-8.6 mm ($\bar{x}$ 7.6 mm) ♀: 6.4-8.0 mm ($\bar{x}$ 7.2 mm).

Distribution (fig. 52): *B. bloetei* is recorded from Biak and Japen islands in the Geelvink Bay and seems to be a common species in the northern parts of west and mid New Guinea north of the central mountain range, though the species is also recorded from the south coast near Uta and from Kawakit, just south of the Star Mountain range. *B. bloetei* does not occur on Tjendrawasih.

Remarks: From several localities larger series (especially females) are available. Between these series, rather large differences in average sizes exist. Females from Waris and Dojo are larger than those from Ifar; body length Waris: 19.9-23.5 mm ($\bar{x}$ 21.9 mm ± 1.2); Dojo 18.8-23.3 mm ($\bar{x}$ 21.1 mm ± 1.4) and Ifar: 17.0-

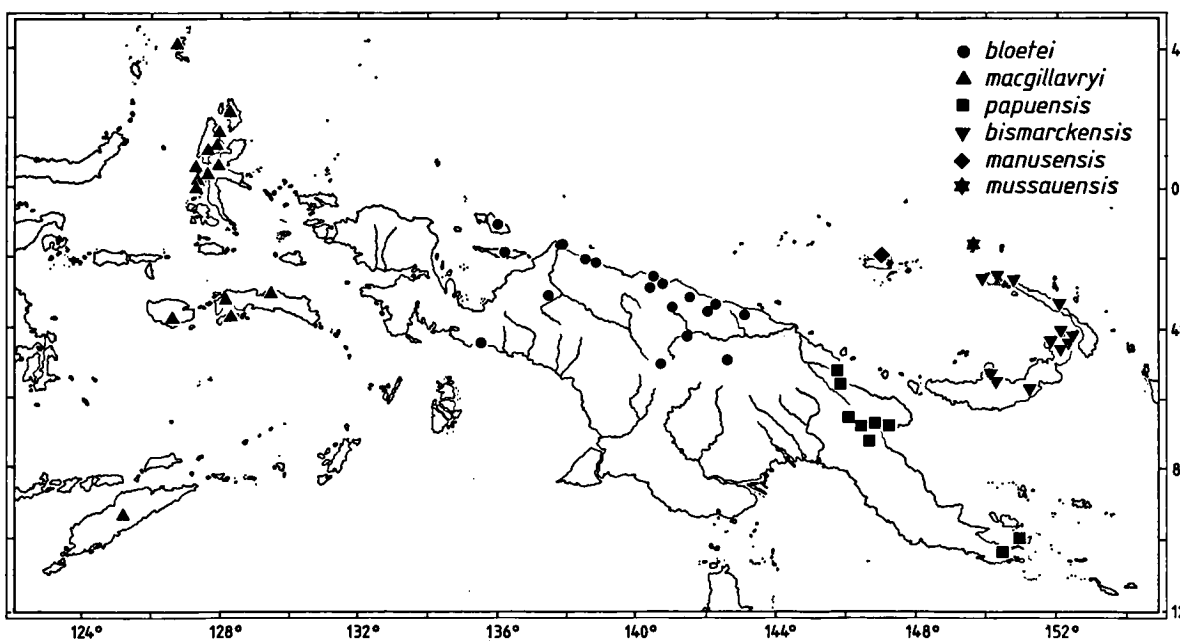


Fig. 52. Distribution of *Baeturia bloetei*, *Baeturia macgillavryi*, *Baeturia papuensis*, *Baeturia bismarckensis*, *Baeturia manusensis* and *Baeturia mussauensis*.

21.0 mm ($\bar{x}$ 19.0 mm ± 1.4). Comparable differences exist in tegmen length. Males were too few in number to allow such comparisons.

The two male specimens from south of the central mountain range (Kawakit and Siera riv.) have a much smaller aedeagus pore, like in *B. macgillavryi* described next. However, seen from behind, the aedeagus of these specimens is broad at its base, characteristic of *B. bloetei*.

Etymology: This species was named in honour of Dr. H. C. Blöte, former curator of Hemiptera in the Leiden museum, who described many *Baeturia* species from New Guinea as new (1960) and first mentioned and depicted this species.

Baeturia macgillavryi n.sp.
(Figs. 49-52)

Types: Holotype: "Halmaheira" (written); "Coll. Dr D. McGillavry" (print), ♂, ZMA; Paratypes: same data as holotype, 12♂, 7♀, ZMA; Other material: MALUKU (Moluccas): SOUTH MOLUCCAS: AMBON: Amboin, Forsten, 1♂, RMNH; Amboin v-viii.1865, Hoedt, 1♂, RMNH; Amboina, 1859, Dr Doleschal, 3♂, 2♀, NhMW; Ambon I, Waai, 12.v.1960, A. M. R. Wegener, 1♂, BPBM; same data but 13.v.1960, 1♂, 1♀; 14.v.1960, 3♀; 1.vii.1960, 1♀; 22.vii.1960, 1♂; 22.ix. 1960, 1♂; 15.x.1960, 1♂; 18, 22, 24.xii.1960, 3♀; 20.i.1961, 1♀; 14.ii.1961, 1♂; 18.ii.1963, 2♀; 19.ii.1963, 1♂; 20, 24.ii.1963, 2♀; 11.iii.1963, 1♀; 20.iii.1963, 1♂; 8.vii.1963, 1♂, 1.vii.1965, 1♀, all BPBM; same data but 8.iv.1961, 1♂; 30.i.1963, 1♀, both ZMA; BURU: Boeroe, Denin, iii.1914, 3♂, 1♀, MZB; Buru Station 5 [Wa Katin, 1675 ft. see Toxopeus, 1924], 1921, leg. L. J. Toxopeus, 1♂, MZB; same data but iv.1921, 1♂, MZB; Buru station 6/4 [station 4: Mnges waen, 2700 ft, station 6: Wa Eno, 1675 ft. see Toxopeus, 1924], 28.i.1922, 1♂ det. *bicolorata* Dist., MZB; CERAM: Koea Taloearang, 30-200 m, viii.1917, 1♀, MZB: Piroe, i.1909, F. Muir, 5♂, 2♀, BPBM; same data 1♂, 1♀, ZMA; same data but ii.1909, 5♀, BPBM; NORTH MOLUCCAS: HALMAHERA: Akalimo, 100 m, 9-12.ix.1952, 2♀, MZB; Dodinda, 2-4.xi.1951, 1♀, MZB; Gilolo, Wallace, 1♂ det. *Pilectus* Stål (manuscript name?), BMNH; Talewang, 50 m, 12-25.x.1951, 2♂, MZB; same data but 18.x.1951, 1♀, MZB; Tobelo, 4♂, 1♀, BIN; Tuguar Ta San, 100-150 m, 20-24.ix.1951, 2♀, MZB; MAKIAN: Majan Isl. NW Moluccas, 7.xi.1953, A. M. R. Wegner, 1♀, MZB; MOROTAI: Goegoei, 1926, Erie, 3♀, MZB; Morty, 1♂ det. *Cephaloxys cillogata* (manuscript name?), BMNH; Morotai, Bernstein, 3♂, 2♀, RMNH; TALAUT: Talaut, Distant coll., 1♂, BMNH; TERNATE: Ternate, Forster, 1♂, RMNH; Ternate, 17.ii.1929, Prince Léopold, 1♀ *B. famulus* Stål det. Lallemand, BIN; TIDORE: Tidore, 24-29.ix.1929, Snellius Exp., 1♂, RMNH; NUSSA TENGARA: TIMOR: Timor, 1♂, 1♀, MZB. Further belonging to this species: Java (probably wrongly labeled), W. J. E. Hekmeyer, 1♂, RMNH; Ost Indien, 1♂, NhMW.

B. macgillavryi is very similar to *B. bloetei*. It has the same variability in characters, and some doubt exists whether it should be described as a separate species. The only discriminating character was found in the size and shape of aedeagus and aedeagus pore.

Description

The description largely follows that of *B. bloetei*.

Specimens from the north Moluccas are all olive-green coloured males from the south Moluccas are light brown, whilst females from this area are predominantly bicoloured, with green head and thorax and ochraeous abdomen. These differences may be artificial and due to preservation. The specimens from the south Moluccas are on average smaller than those from the north Moluccas, the latter are of about the same size as *B. bloetei*. Abdomen in males 1.6-1.9 x as long as head and thorax.

Male genitalia: Pygofer as in *B. bloetei*, with same variability in shape of ventral margin. North Moluccan material predominantly as in fig. 49: ventral margin in straight line to distal apex of lateral protuberance. Aedeagus pore smaller and narrower than in *B. bloetei*, but distinctly larger and broader than in *B. papuensis* described next. Aedeagus narrower between basal lobes than in *B. bloetei* (fig. 51). Aedeagus in lateral view (fig. 50) more slender than in *B. bloetei* and less concave towards apex; basal lobes broader.

Measurements: Body length ♂: 22.0-26.8 mm ($\bar{x}$ 24.9 mm ± 1.1) ♀: 15.8-20.8 mm ($\bar{x}$ 18.3 mm ± 1.1); tegmen length ♂: 22.7-29.0 mm ($\bar{x}$ 24.5 mm ± 1.0) ♂: 22.1-26.0 mm ($\bar{x}$ 24.1 mm ± 1.1); pronotum length ♂: 2.6-2.9 mm ($\bar{x}$ 2.7 mm) ♀: 2.3-2.8 mm ($\bar{x}$ 2.6 mm); mesonotum length ♂: 3.9-4.5 mm ($\bar{x}$ 4.2 mm)

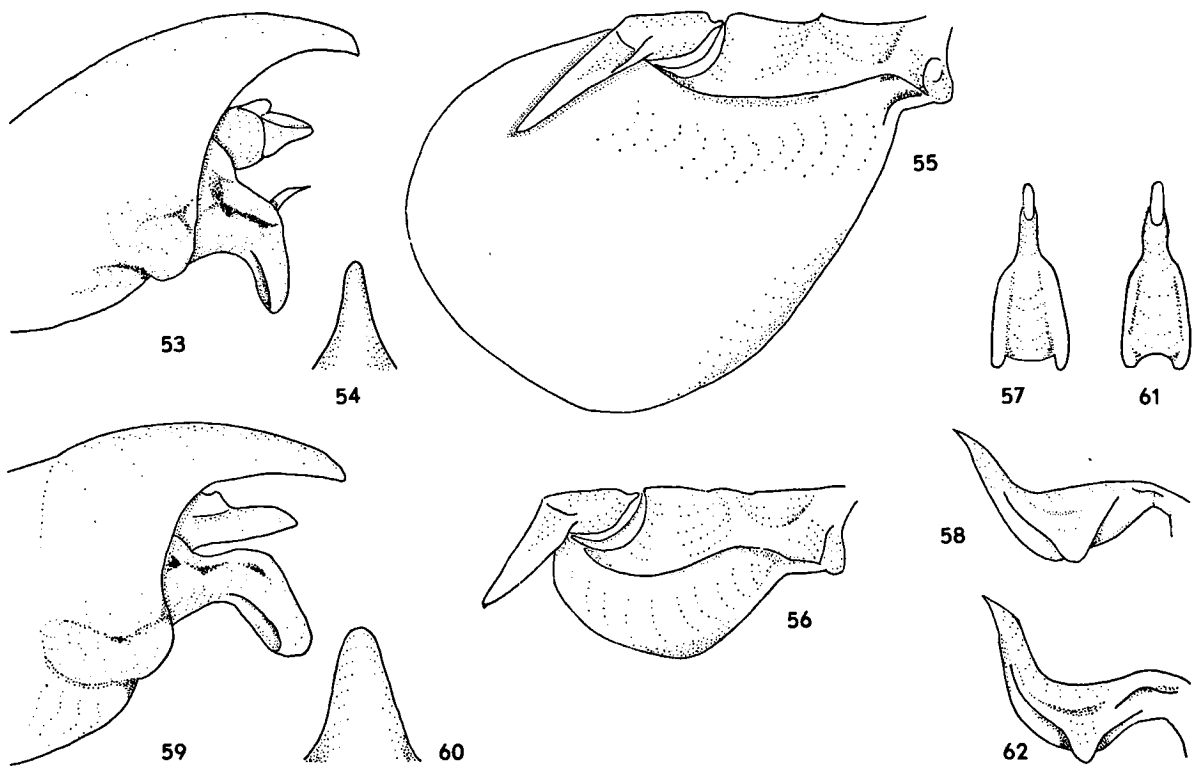
♀: 3.7-4.9 mm (x̄ 4.4 mm); head width ♂: 4.0-4.4 mm (x̄ 4.2 mm) ♀: 3.8-4.6 mm (x̄ 4.2 mm); width pronotal collar ♂: 5.5-6.2 mm (x̄ 5.9 mm) ♀: 4.8-6.8 mm (x̄ 5.8 mm).

Distribution (fig. 52): *B. macgillavryi* is distributed all over the north Moluccas, with records from the islands of Halmahera, Makian, Morotai, Talaut Ternate and Tidore, and in the south Moluccas with records from Ambon, Buru and Ceram. Furthermore the species is recorded from Timor.

Etymology: This species was named in honour of Dr D. MacGillavry, who donated the type series to the Amsterdam museum.

Baeturia papuensis n. sp.
(Figs. 7-8, 52-58)

Types: Holotype: "New Guinea (NE), Lae, Sea level, July.24.1955" (print); "Light trap, J. L. Gressitt" (print), ♂, BPBM; Paratypes: same data as holotype, 4♂, 1♀, BPBM; same data 1♂, ZMA; Other material: NEW GUINEA: Nouv. Guinée, Noualhier, 1898 det. *bicolorata* 1♂, 1♀, MNP. PAPUA: New Guinea (NE): Bulolo, 30 m, 21.viii.1956, E. J. Ford Jr., 1♂, BPBM; Bulolo, 24.viii.1978, J. J. Jack, 1♂, BPBM; Bupu river 12 mi NE Lae, Morobe dist., 80 m, 1.x.1970, Frank J. Radovsky, 1♂, BPBM; Erima, Astrolabe bay, Biró, 1896, 20♂, 71♀, TMB; Kassam on Lae - Goroka rd. Karatke Mts., 1370 m. 10.xi.1959, L. J. Brass, 6th Archbold exped., 1♂, AMNH; Lae, vi.1944, F. E. Skinner, 3♂, 1♀, CAS; Lae, Singuawa riv., 30m, 8.iv.1966, O. R. Wilkes, 1♂, BPBM; same data but 13.iv.1966, 1♂, 6♀; BPBM; same data 1♀, ZMA; same data but 80 m, 15.iv.1966, 2♀, BPBM; Lae, Morobe distr., 21.viii.1978, J. L. Gressitt, 1♂, BPBM; Stephansort, Astrolabe bay, Biró, 1897, 6♂, 45♀, TMB; Sumsum 64 km N Wau, 500 m, 15.ii.1963, H. W. Clissold, 3♂, 2♀, BPBM; Umi river, Markham vally, 480 m, 25, 26, 27.xi.1959, L. J. Brass, 6th Archbold exped., 3♀, AMNH; PAPUA: New Guinea (SE): Milne Bay, 1898-1899, 3♂, BMNH; NORMANBY ISL.: Wakaiunga, Sewa Bay, 21-31.xii.1956, W. W. Brandt, 3♀, BPBM.



Figs. 53-62. 53-58. *Baeturia papuensis*: 53, pygofer in lateral view, Milne Bay; 54, male caudodorsal beak, Milne Bay; 55, Male operculum, holotype; 56, female operculum, Lae Singuava riv.; 57, aedeagus from behind, Lae; 58, aedeagus in lateral view, Lae. 59-62. *Baeturia bismarckensis*: 59, pygofer in lateral view, Mt. Sinewit; 60, male caudodorsal beak, Mt. Sinewit; 61, aedeagus from behind, holotype; 62, aedeagus in lateral view, holotype.

B. papuensis is unspeckled and in general appearance almost identical to *B. bloetei*. The males of *B. papuensis* however, are slightly larger on average, while their tegmina are slightly shorter, often shorter than total body length. This species is easily recognized by its downward bent claspers.

Description

Body of males light yellowish brown or greenish. Females tend to be bicoloured; head and thorax green, and abdomen ochraceous, though the green seems to have faded and to be replaced by ochraceous in many specimens.

Opercula: Male operculum (fig. 55). Distal part of operculum oblong shaped, much broader than in *B. bloetei*. The straight lateral margin broadly rounds into a straight distal margin at distolateral edge. Distomedial edge broadly rounded. Operculum slightly curved towards body at lateral margin. Female operculum (fig. 56) very large and angular compared to other species of this genus, though distinctly shorter than in *B. bloetei* and *B. macgillavryi*. As in these species, the straight lateral margin rising abruptly, almost rectangular from distolateral crest of operculum base and running almost parallel to body axis. Distolateral edge very angular, distomedial edge more rounded and distal margin almost straight. Female operculum strongly curved towards abdomen, especially at distolateral edge.

Abdomen: Male abdomen yellow-green or light brown. Segmental margins ochraceous or greenish. Most specimens show a vague lateroventral row of unpigmented patches on segments 3-7. Male abdomen 1.2-1.6 X as long as head and thorax. Female abdomen ochraceous, unspeckled. Female caudodorsal beak triangular and pointed or rounded at apex.

Male genitalia: Pygofer in lateral view (fig. 53) slender, dorsal margin broadly rounded to a slender, slightly erect caudodorsal beak. Caudodorsal beak (fig. 54), in some specimens very slender, either truncate or rounded at apex and shorter than claspers. Distal margin of pygofer broadly rounded into caudodorsal beak. Protuberances on lateral pygofer lobes very well developed and bluntly rounded. Clasper in lateral view (fig. 7) very characteristic; sharply bent down to its apex at about 1/3 of its dorsal margin. Clasper heel rounded, almost indiscernible in lateral view. Dorsal and ventral margin of clasper base parallel in lateral view. Clasper hollow long and slender. Margin of clasper hollow forming a right angle with distoventral margin of clasper base. A distinct crest running along proximal part of dorsal margin, from clasper base to the point where clasper bends down. Clasper in dorsal view (fig. 8) very characteristic, with convex lateral margins, concave near clasper base and broadly rounded at apex. Aedeagus pore oval, sometimes pointed at apex; much smaller than that of *B. macgillavryi*. Seen from behind, aedeagus suddenly narrowing just above basal lobes (fig. 57). Aedeagus in lateral view (fig. 58) almost straight at apex; basal lobes very broad.

Measurements: Body length ♂: 22.9-27.5 mm ($\bar{x}$ 26.2 mm ± 1.5) ♀: 18.0-21.2 mm ($\bar{x}$ 20.0 mm ± 1.0); tegmen length ♂: 22.2-27.0 mm ($\bar{x}$ 25.1 mm ± 1.1) ♀: 24.5-28.3 mm ($\bar{x}$ 26.1 mm ± 1.0); pronotum length ♂: 2.6-3.1 mm ($\bar{x}$ 3.0 mm) ♀: 2.9-3.4 mm ($\bar{x}$ 3.2 mm); mesonotum length ♂: 4.7-6.1 mm ($\bar{x}$ 5.2 mm) ♀: 4.9-6.1mm ($\bar{x}$ 5.4 mm); head width ♂: 4.3-5.6 mm ($\bar{x}$ 4.9 mm) ♀: 4.7-5.3 mm ($\bar{x}$ 5.0 mm); width pronotal collar ♂: 6.6-7.7 mm ($\bar{x}$ 7.2 mm) ♀: 7.0-8.1 mm ($\bar{x}$ 7.6 mm).

Distribution (fig. 52): *B. papuensis* is distributed in the northern parts of Papua New Guinea, including Huon peninsula (Bupu river) and is further recorded from Milne bay, the eastern point of Papuan peninsula. At present there are no records of this species from other localities on the Huon and Papuan peninsulas. Three females from Normanby island probably belong to this species.

Baeturia bismarckensis n. sp.
(Figs. 9-10, 37-38, 52, 59-65)

Types: Holotype: "New Britain, Gazelle pen., Upper Warangoi, Illugi, 12-15.xii.1962" (print); "J. Sedlacek colletor Bishop" (print), ♂, BPBM; Paratypes: same data

as holotype, 6♂, 2♀, BPBM; same data 1♂, 1♀, ZMA; Other material: BISMARCK ARCH.: DUKE OF YORK: Duke of York isld., 1♂ det. *quadifida* Wakler, BMNh; Neu Lauenburg, Mioco, C. Ribbe, 3♂, 1♀, TMB; NEW BRITAIN: Bainings St. Paul's, 350 m, 7.ix.1955, J. L. Gressitt, 1♂, BPBM; Gaulim, 140 m, 21-27.x.1962, J. Sedlacek, 1♂, 1♀, BPBM; same data but 130 m 23-28.x.1962, 2♂, 1♀; 140 m, 20-22.x.1962, 1♀, all BPBM; Gisiluva Nakanai Mts., 1050 m, 26.vii.1956, E. J. Ford Jr., 1♀, BPBM; Kerawat, 60 m, 29.viii.1955, L. J. Gressitt, 2♂, 1♀, BPBM; same data but 11.ix.1955, 1♂, 1♀, ZMA; Kerawat E.N.B. onlyrold E degulpta, 4.v.1971, B. C. Peters, 1♂, BMNH; Kiniguang, C. Ribbe, 1♂, 1♀, TMB; Mulutu NW Rabaul, xii.1929, C. Harslett, 1♀, AMS; Nahavio, 29.ix. 1968, F. O'Sullivan, 1♂, BMNH; Rabaul, 2♀, ZML; Rabaul 20 mi. NE, lt. Comm. Harrington, 1♀, AMS; Rabaul 10.i.1934, J. L. Frogatt, 1♂, BPBM; Sinewit, Mt, 900 m, 5-14.1962, J. Sedlacek, 1♀, BPBM; same data but 10.xi.1962, 1♀; 13.xi.1962, 1♂, all BPBM; Talasea Narunaguru rd., 22.xi.1969, James E. Tolber, 3♀, CAS; Vunabakan 10 km E Keravat, 180 m, 16-20.xi.1959, T. C. Maa, 2♀, BPBM; Vunapope, 1♂, TMB; Warangoi, 100 m, J. L. Gressitt, 24.v.1956, 2♂, BPBM; Yalom, 1000 m, 15.v.1962, Noona Dan Exp., 1♂, UZMK; NEW HANOVER (= Lavongai): New Hanover, 29.v.1934, J. L. Froggatt, 1♂, BMNH; Banatam, 24.iii.1962, Noona Dan Exp., 1♀, UZMK; Matanas Harbour, 23.ii.1962, Noona Dan Exp., 1♂, UZMK; NEW IRELAND: Gilingil pl't., N Ireland (SW), 2 m, 6.vii.1956, E. J. Ford Jr., 1♂, BPBM; Kandan, 25.xii.1959, W. W. Brandt, 1♂, BPBM; same data but 1.i.1960, 2♂, 1♀, BPBM; Kavieng, 0-30 m, x.1968, N. L. H. Krauss, 1♂, BPBM; WATOM: Ins. Waton, 2♂, 1♀, TMB.

B. bismarckensis is a medium sized species, that can easily be recognized by the peculiar bend in its clasper.

Description

Body of males varying in colour from yellow-green to red-brown, sometimes bicoloured, with greenish head and thorax and ochraceous abdomen, generally slightly light brown speckled, especially on head and pronotum. Some of lighter coloured specimens unspeckled. Females darker, more greyish brown and heavily speckled all over. Two females from Rabaul, in the Lund museum, differ strongly in colouration; one entirely green, the other with green head and thorax and ochraceous abdomen. Both these females are unspeckled.

Opercula: Male operculum in most specimens as in *B. bloetei* (fig. 43). In some however, more rounded at distolateral edge, so that in ventral view the sclerotized connecting bar between tymbal and abdomen becomes partly visible (fig. 63). Female operculum (fig. 64) rudimentary, sickle-shaped, slightly angular at distal margin and erect.

Abdomen: Male abdomen yellow-green to red-brown, slight brown speckling concentrates in a medial band and on sides of segments 7 and 8. Margins of segments 3-7 red. A very vague lateroventral row of darkened spots on segments 3 to 7. Unspeckled specimens however, have greenish segmental margins and unpigmented light ochraeous patches instead of the darkened spots. Male abdomen 1.2-1.5 x as long as head and thorax. Female abdomen castaneous brown, heavily brown speckled, segmental margins only slightly reddened and lateroventral row of dark spots hardly discernible. Female caudodorsal beak (fig. 65) sharply pointed at apex.

Male genitalia: Pygofer in lateral view (fig. 59) rather stout, dorsally rounded towards caudodorsal beak. Caudodorsal beak (fig. 60) less erect than in foregoing species, in most specimens rounded, but sometimes truncate at apex and shorter than claspers. Protuberances on lateral pygofer lobes well-developed, more elongate compared to *B. bloetei* and slightly bent upwards at pygofer margin. Clasper in lateral view (fig. 9) very characteristically narrowing between basal part and apical part. Apical part of clasper smoothly rounded dorsally and with large lateroventral hollow. Margin of clasper hollow forming a right angle with distoventral margin of clasper base. Basal part of clasper very broad, in lateral view gradually broadening dorsally and ventrally, so that there is no distinct angular clasper heel. A short lateral crest running along dorsal margin of the clasper, where clasper is at its narrowest. Clasper in dorsal view (fig. 10) broadly rounded at apex and gradually broadening to base. Aedeagus with smal oval pore (fig. 61).

Aedeagus in lateral view (fig. 62) straight towards apex; basal lobes somewhat narrower than in foregoing species.

Measurements: Body length ♂: 18.0-24.9 mm ($\bar{x}$ 21.8 mm ± 1.7) ♀: 16.9-20.8 mm ($\bar{x}$ 18.8 mm ± 1.1); tegmen length ♂: 19.8-27.0 mm ($\bar{x}$ 22.3 mm ± 1.8) ♀: 22.4-28.4 mm ($\bar{x}$ 25.4 mm ± 1.5); pronotum length ♂: 2.2-2.7 mm ($\bar{x}$ 2.5 mm) ♀: 2.5-3.0 mm ($\bar{x}$ 2.8 mm); mesonotum length ♂: 4.1-5.0 mm ($\bar{x}$ 4.5 mm) ♀: 4.2-5.0 mm ($\bar{x}$ 4.6 mm); head width ♂: 4.1-4.9 mm ($\bar{x}$ 4.6 mm) ♀: 4.7-5.1 mm ($\bar{x}$ 4.8 mm); width pronotal collar ♂: 5.2-6.7 mm ($\bar{x}$ 6.0 mm) ♀: 6.0-7.0 mm ($\bar{x}$ 6.4 mm).

Distribution (fig. 52): *B. bismarckensis* is endemic to the Bismarck archipelago, with records from New Britain, Duke of York island, New Ireland, New Hanover and Watom.

Baeturia manusensis n. sp.
(Figs. 11-12, 52, 66-72)

Types: Holotype: "Bismarck isl. Manus, Lorengau, 18.vi.1962, Noona Dan Exp. 61-62" (print); "Caught by mercury light" (print), ♂, UZMK; Paratypes: same data as holotype but 15.vi.1962, 1♂; 18.vi.1962, 1♂; 19.vi.1962, 1♂, 1♀, all UZMK; Other material: MANUS: Momote, 24.xii.1959, T. C. Maa, 1♂, BPBM.

B. manusensis can be recognized by its small size and its almost square operculum. Its clasper is more straightened and the speckling is more intense than in *B. bismarckensis*.

Description

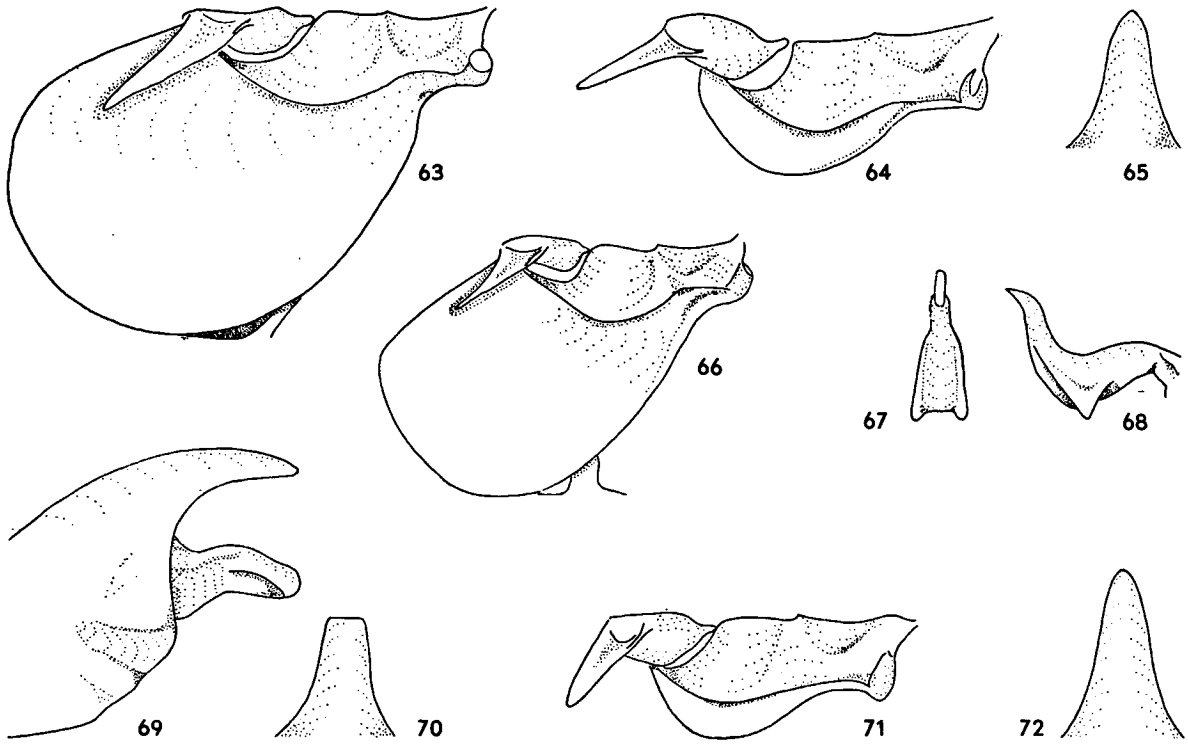
Body of males red-brown with brown speckling all over, pronotum sometimes reddened on collar and in a medial band. The only female from this island is yellowish green and unspeckled, which makes its determination questionable.

Opercula: Male operculum (fig. 66) shorter than in *B. bismarckensis*. Distal part almost square, angular at distolateral and distomedial edges. Lateral margin of operculum not rectangular on, but more gradually rising from distolatoral crest of basal part, distinctly more angular however, than in *Baeturia* species not belonging to the *bloetei* group, and since the lateral operculum margin runs almost parallel to body axis, the species certainly belongs to this group. Distolateral edge shifted more mesiad, like in *B. bismarckensis*, so that connecting bar between abdomen and tymbal becomes partly visible in ventral view. Female operculum (fig. 71) sickle-shaped, erect, and shorter than in *B. bismarckensis*.

Abdomen: Male abdomen more intensely pigmented than in *B. bismarckensis*, lateroventral row of dark spots more clearly visible. Segmental margins reddened. Male abdomen 1.5-1.9 X as long as head and thorax. Female abdomen yellow-green and unspeckled with greenish segmental margins. Female caudodorsal beak (fig. 72) very long, triangular, broad at base and sharply pointed at apex.

Male genitalia: Pygofer in lateral view (fig. 69) slender, dorsal margin rounded into slender caudodorsal beak. Caudodorsal beak (fig. 70) turncate at apex, shorter than claspers and strongly bent down; margin of beak forming an almost right angle with almost straight distal margin of pygofer. Lateral lobes of pygofer with bluntly rounded, slightly elongate, lateral protuberances. Clasper in lateral view (fig. 11) more stretched than in foregoing species, only slightly bent down at half length of its dorsal margin. Apical part of clasper with large lateroventral hollow. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Basal part of clasper broadening, with dorsal and ventral margin diverging in lateral view. Clasper heel flattened and bent inwards, hardly discernible. A distinct crest running along proximal part of dorsal margin, bends upwards at clasper base into clasper heel. Apical part of clasper in dorsal view (fig. 12) gradually broadening. Aedeagus pore small and oval. Seen from behind, aedeagus narrowing abruptly, just above basal lobes (fig. 67). Aedeagus in lateral view (fig. 68) nearly straight at apex; basal lobes almost pointed.

Measurements: Body length ♂: 16.3-18.9 mm ($\bar{x}$ 17.7 mm) ♀: 19.9 mm; tegmen length ♂: 16.3-19.0 mm ($\bar{x}$ 18.0 mm) ♀: 26.3 mm; pro-



Figs. 63-72. 63-65. *Baeturia bismarckensis*: 63, male operculum, Mt. sinewit; 64, female operculum, Gaulim; 65, female caudodorsal beak, Gaulim. 66-72. *Baeturia manusensis*: 66, male operculum, holotype; 67, aedeagus from behind, holotype; 68, aedeagus in lateral view, holotype; 69, pygofer in lateral view, holotype; 70, male caudodorsal beak, holotype; 71, female operculum; 72, female caudodorsal beak.

notum length ♂: 1.7-1.9 mm ($\bar{x}$ 1.8 mm) ♀: 3.0 mm; mesonotum length ♂: 2.8-3.6 mm ($\bar{x}$ 3.3 mm) ♀: 4.6 mm; head width ♂: 3.3-3.8 mm ($\bar{x}$ 3.6 mm) ♀: 4.8 mm; width pronotal collar ♂: 4.2-4.8 mm ($\bar{x}$ 4.5 mm) ♀: 6.5 mm.

Distribution (fig. 52): This species is endemic to Manus island in the Admirality Islands.

Baeturia mussauensis n. sp.
(Figs. 13-14, 52, 73-77)

Types: Holotype: "Bismarck isl. Mussau, Talumalaus, 20 jan. 1962, Noona Dan Exp. 61-62" (print); "Caught in Malaise traps" (print), ♂, UZMK; Paratypes: same data as holotype but 18.i.1962, 1♀; 19.i.1962, 2♂; 22.i. 1962, 1♀; 23.i.1962, 2♂; 27.i.1962, 1♀; 30.i.1962, 2♂; 3.ii.1962, 1♂, all UZMK.

B. mussauensis is a speckled species, in size intermediate between *B. bismarckensis* and *B; manusensis*, and very similar to the latter. Apart from its size, this species can be separated from *B. manusensis*, by the deviating shape of head and a larger, more rounded operculum.

Description

Body of males red-brown, intensely brown speckled. Females more grey-brown, speckled all over.

Head: Differing in shape from all other species of the *bloetei* group. Vertex relatively narrower compared to width of head. Lateral ocelli closer together. Distance between the lateral ocelli shorter than width of frontal ocellus. (In almost all other *Baeturia* species this distance larger, about 1.5 x the width of frontal ocellus). This character, though less distinct, also apparent in females. Distance between lateral ocelli 0.8-1.0 x distance between eye and lateral ocellus. Eyes in males 0.9 x as wide as

distance beween the eyes, in females 0.8-0.9 x. Head in all males longer than distance between the eyes, 1.0-1.2 x as long and 2.7-2.9 x as wide as distance between the eyes. In females 0.9-1.1 x and 2.6-2.8 x respectively.

Opercula: Male operculum (fig. 75) longer, more oblong shaped than in *B. manusensis*, lateral margin more abruptly rising from distolateral crest of basal part. Lateral and distal margins slightly convex, distolateral edge more rounded. Distolateral edge shifted mesiad as in the foregoing species, so that, in ventral view, the connecting bar between abdomen and tymbal becomes partly visible. Female operculum (fig. 77) semi-circular and erect.

Abdomen: Male abdomen intensely pigmented. Lateroventral row of dark spots clearly visible. Segmental margins bright red. Male abdomen 1.3-1.6 x as long as head and thorax. Female abdomen intensely speckled, light brown segmental margins sometimes slightly reddened. Female caudodorsal beak (fig. 76) triangular, broad at base and narrowly rounded at apex.

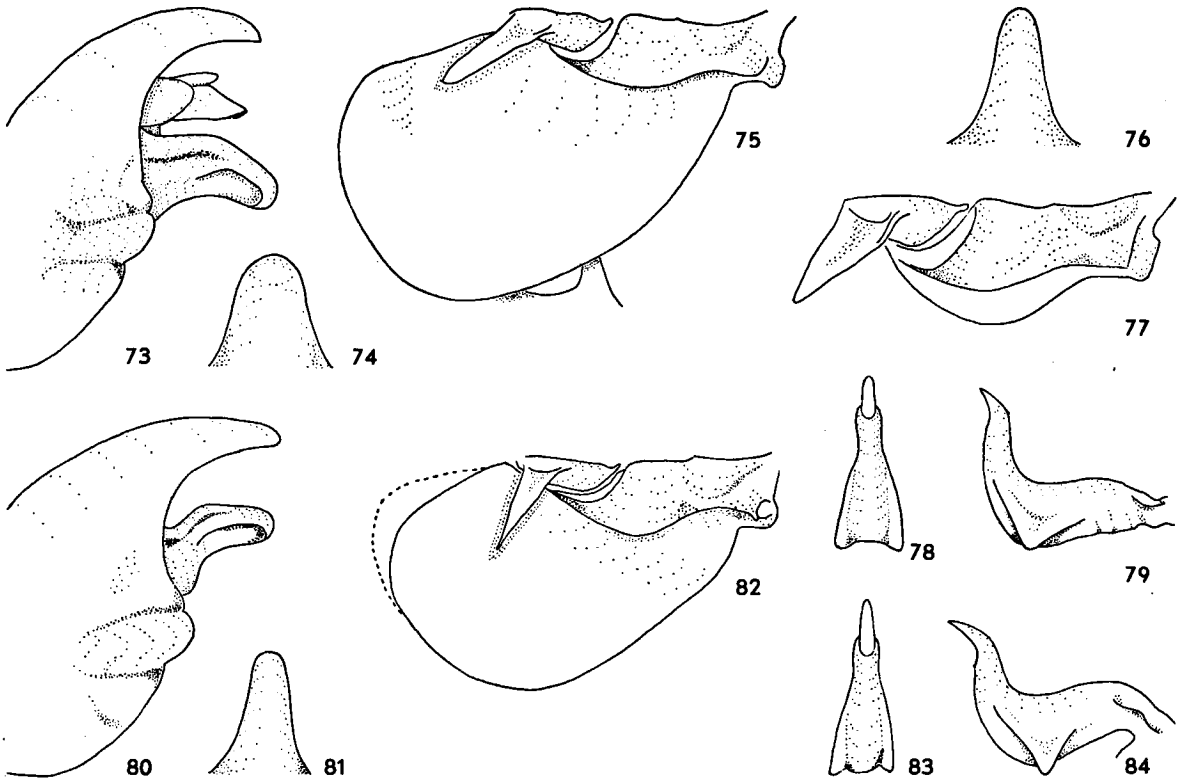
Male genitalia: Pygofer in lateral view (fig. 73) slender, dorsal margin rounded into slender caudodorsal beak. Caudodorsal beak bent down, margin of beak forming a nearly right angle with broadly rounded distal margin of pygofer. Caudodorsal beak (fig. 74) rounded, in one specimen truncate, at apex and shorter than claspers. Lateral lobes of pygofer with bluntly rounded, slightly elongate, lateral protuberances. Clasper in lateral view (fig. 13) almost identical to that of *B. manusensis*, slightly bent down about halfway its dorsal margin. Apical part of clasper with large lateroventral hollow. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Basal part of clasper broadening; dorsal and ventral margin diverging in lateral view. Clasper heel flattened and bent mesiad, hardly discernible. A distinct crest running along proximal part of dorsal margin, bends upwards at clasper base into clasper heel. Apical part of clasper slender, gradually broadening in dorsal view (fig. 14). Aedeagus with small oval pore (fig. 78). Aedeagus in lateral view (fig. 79) nearly straight at apex, basal lobes almost pointed.

Measurements: Body length ♂: 18.9-20.3 mm ($\bar{x}$ 19.8 mm) ♀: 17.2-20.3 mm ($\bar{x}$ 18.8 mm); tegmen length ♂: 20.7-21.9 mm ($\bar{x}$ 21.2 mm) ♀: 23.0-26.3 mm ($\bar{x}$ 25.0 mm); pronotum length ♂: 2.1-2.2 mm ♀: 2.3-2.6 mm ($\bar{x}$ 2.5 mm); mesonotum length ♂: 3.8-4.1 mm ($\bar{x}$ 4.0 mm) ♀: 3.9-5.0 mm ($\bar{x}$ 4.5 mm); head width ♂: 4.0-4.4 mm ($\bar{x}$ 4.3 mm) ♀: 4.3-5.0 mm ($\bar{x}$ 4.8 mm); width pronotal collar ♂: 5.3-5.5 mm ($\bar{x}$ 5.4 mm) ♀: 5.7-6.8 mm ($\bar{x}$ 6.4 mm).

Distribution (fig. 52): This species is endemic to Mussau island in the Admirality Islands.

Baeturia brandti n. sp.
(Figs. 15-16, 80-84, 99, 162-163)

Types: Holotype: "Solomon Is., Bougainville, Kukugai vill., 150 m, xii.1960" (print); "W. W. Brandt collector, Bishop" (print), ♂, BPBM; Paratypes: BOUGAINVILLE: same data as holotype, 3♂, 1♀; BPBM; same data 1♂, ZMA; same data but x.1960, 2♂; xi.1960, 1♂, all BPBM; Bougainville, P. Kilber, 1♀, ZSM; Buin, 1♂, 2♀, BIN; Buin, 26.xii.1970, A. & G. Daniëls, 1♂, Moul; Kieta, 27.vi.1956, E. J. Ford Jr., 1♂, BPBM; Mutahi 18 km SE Tinputz, 700 m, 1-7.iii.1968, R. Straatman, 1♀, BPBM; same location but 8-14.iii.1968 & 15-21.iii.1968, Tawi, 2♀, BPBM; Siwei, x.1930, J. H. L. Waterhouse, 1♀, BPBM; Other material: BUKA: Gagan, 40m, 15.vi.1956, J. L. Gressitt, 1♂, BPBM; same data but 16.vi.1956, 2♂, BPBM; CHOISEUL: Kitipi river, 80 m, 17.iii.1964, P. Shanahan, 1♂, BPBM; Kolombangara river, 60 m, 20.iii.1964, P. Shanahan, 1♂, BPBM; FAURO: Fauro I. NE, 12.iv.1964, P. Shanahan, 1♂, BPBM; KOLOMBANGARA: Base camp 1 mi inland from Kuzi by Kolombara riv., 2.ix.1965, Roy. Soc. Exped., 1♂, BMNH; same data but 5.ix.1965, 1♂, 1♀, BMNH; Gollifer's camp, 100 m, 20.i.1964, P. Shanahan, 1♀, BPBM; SHORTLAND: Shortlands ins., C. Ribbe, 1♂, TMB; Shortlands, 30.vii.1922, E. A. Armytage, 1♀, BMNH; Korova, 26.iv.1934, H. T. Pagden, 1♂, 1♀, BMNH; VELLA-LAVELLA: Vella-Lavella, 12-20.x.1943, P. D. Hurd, 1♀, CAS; Vella-Lavella New Georgia, 22.viii.1963, M. McQuillan, 1♀, BMNH; Kundrumbangara, 80 m, 15.xi.1963, P. Shanahan, 1♂, ZMA; Pusisama, 14.xi.1963, P. Shanahan, 1♀, BPBM; same data but 29.xi.1963, 1♂, BPBM; Ulo crater, 10 m, 7.xii.1963, P. Shanahan, 1♂, BPBM; same data but 9.xii.1963, 1♂, 1♀, BPBM; same data 1♀, ZMA; same data but xii.1963, 1♂; 16.xii.1963, 1♂, both BPBM.



Figs. 73-84. 73-79. *Baeturia mussauensis*: 73, pygofer in lateral view, paratype; 74, male caudodorsal beak, paratype; 75, male operculum, paratype; 76, female caudodorsal beak, paratype; 77, female operculum, paratype; 78, aedeagus from behind, paratype; 79, aedeagus in lateral view, paratype. 80-84. *Baeturia brandti*: 80, pygofer in lateral view, paratype; 81, male caudodorsal beak, paratype; 82, male operculum, holotype; 83, aedeagus from behind, holotype; 84, aedeagus in lateral view, holotype.

B. brandti is very similar to *B. mussauensis* in coloration and body size, but can be recognized by the large and angular clasper heel, a more robust pygofer and the narrow apical part of clasper in dorsal view.

Description

Body of males light brown to reddish brown, brown speckled (fig. 162). Some specimens have a vague unspeckled middorsal band from postclypeus to caudodorsal beak (see remark in description of *B. edauberti*). Females grey-brown or castaneous and intensely speckled (fig. 163). Body size of males slightly varying on the different islands: body length on Bougainville, Choiseul, Fauro, Kolombangara and Vella-Lavella 17.6-22.1 mm ($\bar{x}$ 20.5 mm); on Buka and Shortland 16.4-20.0 mm ($\bar{x}$ 18.0 mm). Such differences were not observed in tegmen length. On Choiseul, Fauro and Kolombangara, tegmen 1.0 x as long as body length; on Buka, Bougainville and Shortland, 1.1-1.2 x. Size differences are less obvious in females, possibly due to the small number at hand. Females from Bougainville have longer tegmina (23.3-25.7 mm), than on other islands (21.2 22.3 mm), with one exception of 25.0 mm in a specimen from Kolombangara). Female tegmen on Bougainville 1.4-1.5 x as long as body length, in others 1.2-1.3 x.

Operculum: Male operculum (fig. 82) distal part square and slightly directed mesiad. In some specimens, operculum medially elongated at distomedial edge, as indicated by dotted line, otherwise distolateral and distomedial edge

very angular. Female operculum sickle-shaped and erect. Distal margin sometimes angularly rounded.

Abdomen: Male abdomen intensely speckled in a medial band and on sides of 7th and 8th segment. Segment margins 3-7 slightly reddened. Lateroventral row of dark spots on segments 3-8 very clear in most specimens. Female abdomen castaneous brown and intensely speckled. Segmental margins ochraceous or reddened. Lateroventral spots less clear than in males. Female caudodorsal beak triangular to almost oblong shaped; narrowly rounded at apex.

Male genitalia: Pygofer in lateral view (fig. 80) very robust, dorsal margin broadly rounded into caudodorsal beak. Caudodorsal beak in lateral view very stout, strongly bent down, broad at its base and slightly longer than claspers. Beak in dorsal view (fig. 81) rather slender and truncate or rounded at apex. Lateral lobes of pygofer with small rounded protuberances. Clasper in lateral view (fig. 15) rather straight, but at about 1/3 of its length slightly bent down towards apex. Apical part of clasper with large ventral hollow. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Clasper base more slender compared to foregoing species. Dorsal and ventral margin of clasper base parallel in lateral view. A vague crest along proximal half of dorsal margin broadening at clasper base, bends slightly upwards into clasper heel. Clasper heel very prominent and angular. Clasper in dorsal view (fig. 16) suddenly narrowing to slender apical part. Aedeagus pore (fig 83) broad, almost triangular shaped and distinctly larger than in the four foregoing species. Aedeagus in lateral view (fig. 84) strongly concave at apex; basal lobes very narrow, almost pointed.

Measurements: Body length ♂: 16.4-22.1 mm ($\bar{x}$ 19.3 mm ± 2.3) ♀: 15.8-18.0 mm ($\bar{x}$ 17.1 mm ± 0.8); tegmen length ♂: 18.9-23.5 mm ($\bar{x}$ 20.7 mm ± 1.4) ♀: 21.5-25.6 mm ($\bar{x}$ 23.4 mm ± 1.2); pronotum length ♂: 2.0-2.4 mm ($\bar{x}$ 2.2 mm) ♀: 2.3-2.5 mm ($\bar{x}$ 2.4 mm); mesonotum length ♂: 3.4-4.3 mm ($\bar{x}$ 3.8 mm) ♀: 3.5-4.5 mm ($\bar{x}$ 4.1 mm); head width ♂: 3.7-4.2 mm ($\bar{x}$ 4.0 mm) ♀: 4.0-4.7 mm ($\bar{x}$ 4.3 mm); width pronotal collar ♂: 4.4-5.8 mm ($\bar{x}$ 5.1 mm) ♀: 5.5-6.3 mm ($\bar{x}$ 5.8 mm).

Distribution (fig. 99): *B. brandti* is only known from the northern Solomon Islands, with data from Buka, Bougainville, Fauro, Shortland, Choiseul, Vella-Lavella and Kolombangara.

Etymology: This species was named in honour of Mr. W. W. Brandt, who collected part of the type series of this species as well as the type series of *B. bilebanarai*.

Baeturia sedlacekorum n. sp.
(Figs. 17-18, 85-91, 99)

Types: Holotype: "SOLOMON IS. GUADALCANAL, Tambalia 35 km W Honiaria, 30 m, 20.v.1964" (print); J. & M. Sedlacek collectors Bishop" (print), ♂, BPBM; Paratypes: GUADALCANAL: same data as holtype, 1♂, BPBM: Betikama river (= Lunga riv.), ix.1960, W. W. Brandt, 1♀, BPBM; Honiaria, 0-200 m, xii.1975, N. L. H. Krauss, 1♂, BPBM; Lavoro Pln., viii-xi.1923, C. E. Hart, 1♂, AMS; same data but 27.ix.1927, 1♂, 2♀; 13.iv.1930, 1♀; 22.ix.1932, 1♀, all AMS; Munda, 15-30 m, 14-15.vii.1957, J. L. Gressitt, 1♂, BPBM; Suta, 5.iv.1963, P. Greenslade, 1♂, BMNH; Tapenanje, 100 ft, J. D. Bradley, 1♂, ZMA; Umasani river, Gallego camp 1. 5-6 mls inland, 1-10.vii.1965, Roy. Soc. Exped. 4♂, BMNH; Other material: GIZO: Gizo I. New Georgia group, 30 m, 11-18.vii.1964, J. & M. Sedlacek, 1♂, 2♀, BPBM; Same data but 14.vii.1964, 1♀, BPBM; RENDOVA: Rendova island, western group, 7.x.1954, E. S. Brown, 3♂, BMNH.

Description

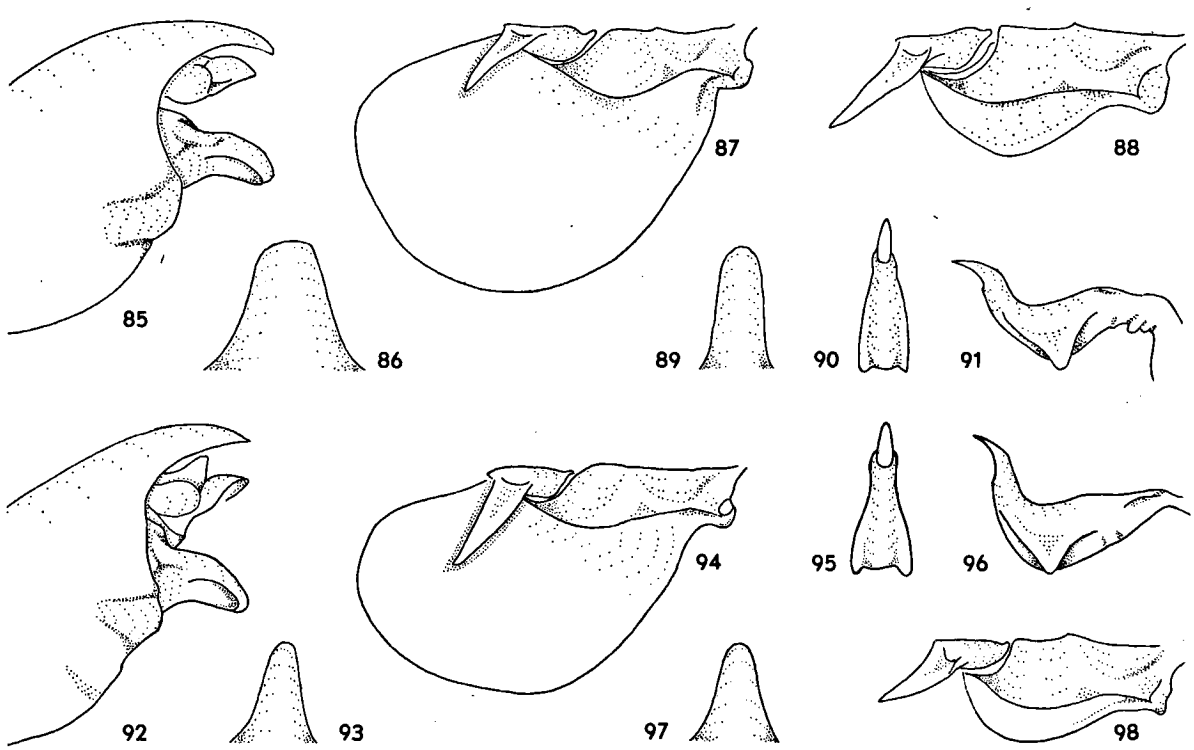
Body of males light brown to reddish brown, brown speckled Females grey-brown or castaneous and intensely speckled. Males distinctly smaller on the small islands Gizo and Rendova; Body length Gizo specimen 16.0 mm, Rendova 14.3-14.9 mm, on Guadalcanal 17.0-21.7 mm ($\bar{x}$ 19.1 mm) the specimens from Rendova however are badly preserved and certainly shrunken.

Operculum: Male operculum (fig. 87) the rather large distal part square shaped and slightly directed mesiad, distolateral edge broadly rounded medially elongated at

distomedial edge as in *B. brandti*. In two specimens from Guadalcanal however, operculum distinctly longer, as in *B. cristovalensis* (fig. 102) and in one specimen from Guadalcanal shorter and wider than long, as described for *B. edauberti* (fig. 143). Female operculum (fig. 88) sickle-shaped and erect, sometimes angular at distal margin.

Abdomen: Male abdomen intensely speckled in a medial band and on sides of 7th and 8th segment. Segment margins 3-7 light red. A clear lateroventral row of dark spots on segments 3-8. Male abdomen 1.5-2.0 x as long as head and thorax. Female abdomen castaneous brown and intensely speckled. Segmental margins ochraceous or reddened. Lateroventral spots less clear than in males. Female caudodorsal beak (fig. 89) very slender and rounded or pointed at apex.

Male genitalia: Pygofer in lateral view (fig. 85) very robust, dorsal margin broadly rounded into caudodorsal beak. Caudodorsal beak in lateral view very stout, strongly bent down, broad at its base and slightly longer than claspers. Beak in dorsal view (fig. 86) very robust and truncate or broadly rounded at apex. Lateral lobes of pygofer with small rounded protuberances. Clasper in lateral view (fig. 17) closely resembling that of *B. brandti*: rather straight, only slightly bent down towards apex at about 1/2 of its length. Apical part of clasper more slender, but about equally long, with a large ventral hollow. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Clasper base slender as in *B. brandti*. Dorsal and ventral margin of clasper base parallel in lateral view. A vague crest along proximal half of dorsal margin



Figs. 85-98. 85-91. *Baeturia sedlacekorum*: 85, pygofer in lateral view, paratype; 86, male caudodorsal beak, paratype; 87, male operculum, paratype; 88, female operculum, Betikama riv.; 89, female caudodorsal beak, Betikama riv.; 90, aedeagus from behind, Umasini riv.; 91, aedeagus in lateral view, Umasini riv. 92-98. *Baeturia reijnhoudti*; 92, pygofer in lateral view, paratype; 93, male caudodorsal beak, paratype; 94 male operculum, Dala; 95, aedeagus from behind, holotype; 96, aedeagus in lateral view, holotype; 97, female caudodorsal beak, Dala; 98, female operculum, Dala.

broadening at clasper base, bends upwards into clasper heel. Clasper heel lower than in *B. brandti*, but often rectangular. Clasper in dorsal view (fig. 18) suddenly narrowing to slender apical part. Aedeagus pore (fig. 90) broad and apically pointed. Aedeagus in lateral view (fig. 91) strongly concave at apex; basal lobes very narrow, almost pointed.

Measurements: Body length ♂: 17.0-21.7 mm ($\bar{x}$ 19.1 mm) ♀: 14.9-21.0 mm ($\bar{x}$ 17.2 mm); tegmen length ♂: 18.1-24.3 mm ($\bar{x}$ 20.6 mm) ♀: 20.3-25.3 mm ($\bar{x}$ 22.8 mm); pronotum length ♂: 1.8-2.3 mm ($\bar{x}$ 2.0 mm) ♀: 2.2-2.5 mm ($\bar{x}$ 2.4 mm); mesonotum length ♂: 3.1-4.2 mm ($\bar{x}$ 3.7 mm) ♀: 3.3-5.2 mm ($\bar{x}$ 4.2 mm); head width ♂: 3.5-4.3 mm ($\bar{x}$ 3.9 mm) ♀: 3.9-5.2 mm ($\bar{x}$ 4.4 mm); width pronotal collar ♂: 4.8-5.9 mm ($\bar{x}$ 5.2 mm) ♀: 5.2-7.1 mm ($\bar{x}$ 6.0 mm).

Distribution (fig. 99): *B. sedlacekorum* is restricted to some islands of the southern Solomon Arc, with recordings from Gizo, Rendova and Guadalcanal and possibly New Georgia (see Remark).

Remark: The locality Munda could not be traced on Guadalcanal, but the U.S. Gazetteer mentions a place of that name on New Georgia, with coordinates 8° 19'S/157° 15'E.

Etymology: This species was named in honour of Mr. and Mrs. Sedlacek, who collected the types of this species besides many of the other specimens on which this study is based.

Baeturia reijnhoudti n. sp.
(Figs. 90-99)

Types: Holotype: "Solomon Is. Malaita (print) Baunani, 30.v (written) 1955, E. S. Brown (print) 3216 (written)"; pres. by Com. Inst. Ent. BM 1958-79" (print), ♂, BMNH; Paratypes: MALAITA: same data as holotype, 1♂, BMNH; same data but 31.v.1955, 1♂, BMNH: Dala, 50 m, 6-11.vi.1964, J. & M. Sedlacek, 1♂, BPBM; same data but 20-22.vi.1964, 1♂, BPBM; Dala 2.6 km N of, 22.vi.1964, J. & M. Sedlacek, 1♀, BPBM; Other material: SANTA YSABEL: Santa Ysabel, 1932, R. A. Lever, 2♂, BMNH; Buala, 4.i.1964, M. McQuillan, 1♂, BMNH; unreadable locality, 8.ii.1955, E. S. Brown, 1♂, BMNH; Rasa, 11.xii.1964, M. McQuillan, 1♂, BMNH; Sukapisu, 900 m, 18.vi.1960, C. W. O'Brien, 1♀, BPBM; same data but 19.vi.1964, 1♂, BPBM; Tatamba, 6.x.1965, Roy, Soc. Exped., 1♂, ZMA.

B. reijnhoudti is a speckled species, almost identical to *B. sedlacekorum*, sharing the same slender clasper. It differs from that species however, by a more slender pygofer and a slender more erect caudodorsal beak.

Description

Body of males ochraceous brown, sometimes reddish; females greyish brown and intensely speckled.

Operculum: Male operculum (fig. 94) distal part square shaped and slightly directed mesiad. Distolateral and distomedial edge angular. In some specimens from Santa Ysabel, operculum medially elongated at the distomedial edge as in *B. brandti*. Opercula of Malaita specimens slightly larger than on Santa Ysabel. In one specimen from Santa Ysabel, operculum distinctly shorter and wider than long, as described for *B. edauberti* (fig. 143). Female operculum (fig. 98) sickle-shaped and erect.

Abdomen: Male abdomen intensely speckled in a medial band and on sides of 7th and 8th segment. Segment margins 3-7 light red. A clear lateroventral row of dark spots on segments 3-8. Male abdomen 1.6-1.8 x as long as head and thorax. Female abdomen castaneous brown and intensely speckled. Segmental margins ochraceous or reddened. Lateroventral spots less clear than in males. Female caudodorsal beak (fig. 97) distinctly shorter than in preceding species, triangular in dorsal view and rounded at apex.

Male genitalia: Pygofer in lateral view (fig. 92) slender, dorsal margin straight and angularly bending into caudodorsal beak. Caudodorsal beak in lateral view slender, slightly erect and slightly longer than claspers. Beak in dorsal view (fig. 93) rather slender and truncate at apex. Lateral lobes of pygofer with small rounded protuberances. Clasper in lateral view and in dorsal view identical to that of *B. sedlacekorum* (figs. 17-18). Aedeagus pore (fig.

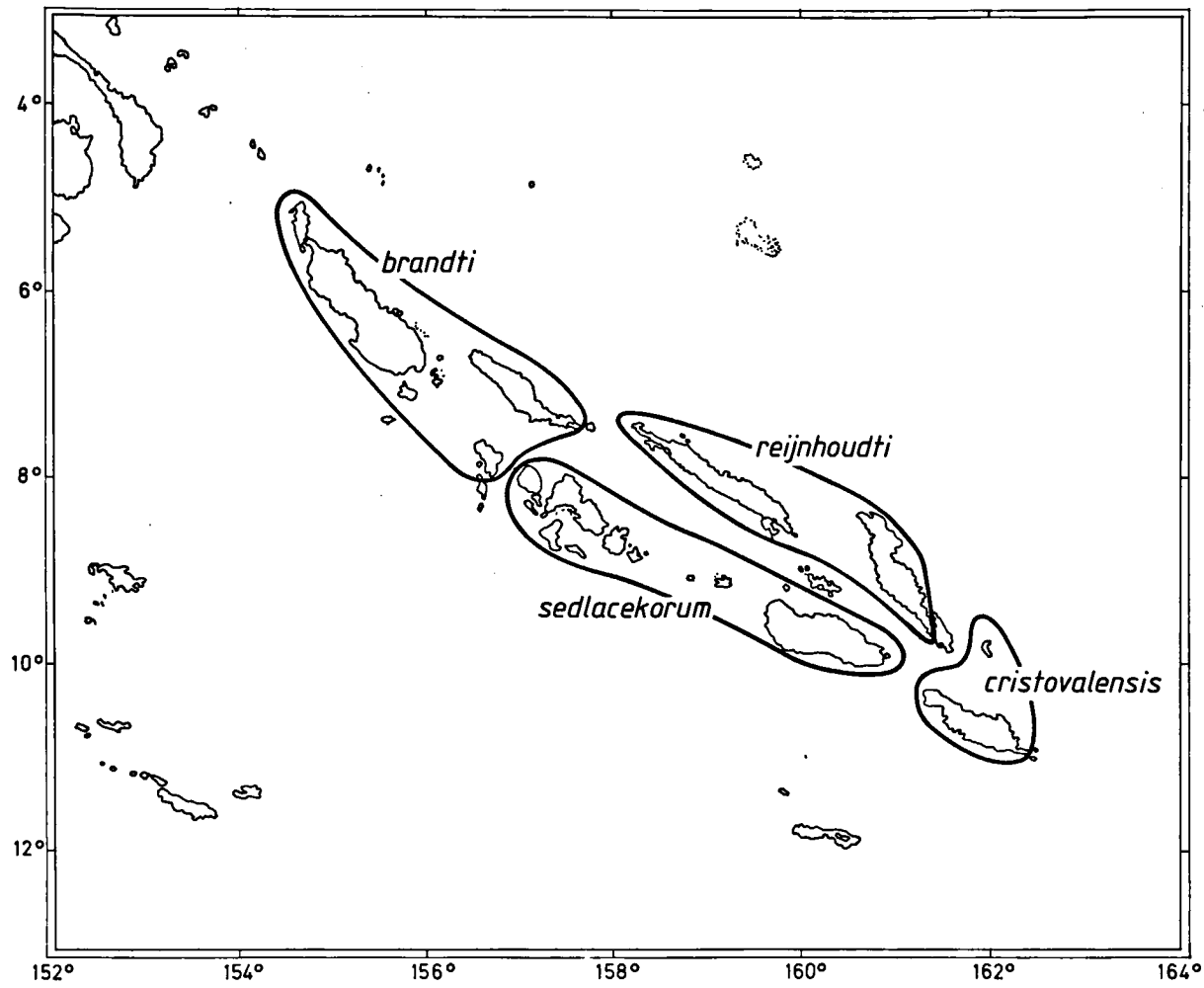


Fig. 99. Distribution of *Baeturia brandti*, *Baeturia sedlacekorum*, *Baeturia reijnhoudti* and *Baeturia cristovalensis*.

95) broad and apically pointed. Aedeagus in lateral view (fig. 96) strongly concave at apex; basal lobes very narrow, almost pointed.

Measurements: Body length ♂: 18.5-21.8 mm ($\bar{x}$ 19.6 mm ± 0.9) ♀: 15.9-16.2 mm; tegmen length ♂: 19.0-21.8 mm ($\bar{x}$ 20.5 mm ± 0.8) ♀: 21.6-22.5 mm; pronotum length ♂: 1.9-2.2 mm ($\bar{x}$ 2.1 mm) ♀: 2.2-2.6 mm; mesonotum length ♂: 3.1-3.8 mm ($\bar{x}$ 3.5 mm) ♀: 3.7-4.0 mm; head width ♂: 3.5-3.8 mm ($\bar{x}$ 3.7 mm) ♀: 3.9-4.1 mm; width pronotal collar ♂: 4.7-4.9 mm ♀: 5.1-5.4 mm.

Distribution (fig. 99): *B. reijnhoudti* appears restricted to the islands Malaita and Santa Ysabel of the northern Solomon Arc.

Etymology: This species was named in honour of Mr. A. Reijnhoudt, editor of the Laurel & Hardy film magazine "Blotto", who did much to promote the genus *Baeturia* in general, and its species *B. laureli* and *B. hardyi* in particular.

Baeturia cristovalensis n. sp.
(Figs. 19-20, 99-105)

Types: Holotype: "Solomon Islands San Cristoval, Camp ii confuence of Warachito and Pagato Rivers, 6-7 mls. inland, 24.vii.65" (print); "Roy. Soc. Exped., Brit. Mus. 1966-1" (print), ♂, BMNH; Paratypes: SAN CRISTOBAL: same data as holotype, 1 ♀, BMNH; same data but 28.vii.1965, 1 ♀; 3.viii.1965, 1 ♀, both BMNH; same data 3.viii.1965, 1♂, ZMA; Ahi Ahi Rave riv.,

4.viii.1960, C. W. O'Brien, 1♂, 1♀, BPBM; Kira Kira, 0-50 m, 5.xi.1964, R. Straatman, 1♀, ZMA; Maniate, 5 & 6.viii.1960, C. W. O'Brien, 2♀, BPBM; Manipuena Magoha riv., 13.viii.1960, C. W. O'Brien, 1♀, BPBM; Napagiwae, 19.viii.1960, C. W. O'Brien, 1♀, BPBM: Wairahu riv., 100-400 m, 9-15.v.1964, J. Sedlacek, 1♂, 1♀, BPBM; Warahito riv., 30.iv.1955, E. S. Brown, 1♂, BMNH; Unreadable locality, 31.vii.1965, Roy. Soc. Exped., 1♂, BMNH; other material: ULAWA: Ulawa Island, 7.iv.1955, E. S. Brown, 1♂, BMNH.

B. cristovalensis is a speckled species, almost identical to the three preceding. The males are slightly larger on average and can be recognized by a shorter, broader clasper, lacking an angular dorsal heel. The male operculum is longer and more rounded.

Description

Body of males ochraceous or light brown, brown speckled; females greyish brown or castaneous and intensely speckled.

Opercula: Male operculum (fig. 102): distal part more elongated than in three preceding species, oblong shaped as in *B. bloetei*. Lateral margin and laterodistal edge broadly rounded, distomedial edge angular. Female operculum (fig. 103) sickle-shaped or slightly angular and erect, in some specimens slightly larger than in three preceding species.

Abdomen: Male abdomen intensely speckled in a medial band and on sides of 7th and 8th segment. Segment margins 3-7 light red. A clear lateroventral row of dark spots on segments 3-8. Male abdomen 1.6-1.8 x as long as head and thorax. Female abdomen castaneous brown and intensely speckled. Segmental margins ochraceous or reddened. Lateroventral spots less clear than in males. Female caudodorsal beak triangular in dorsal view and rounded at apex.

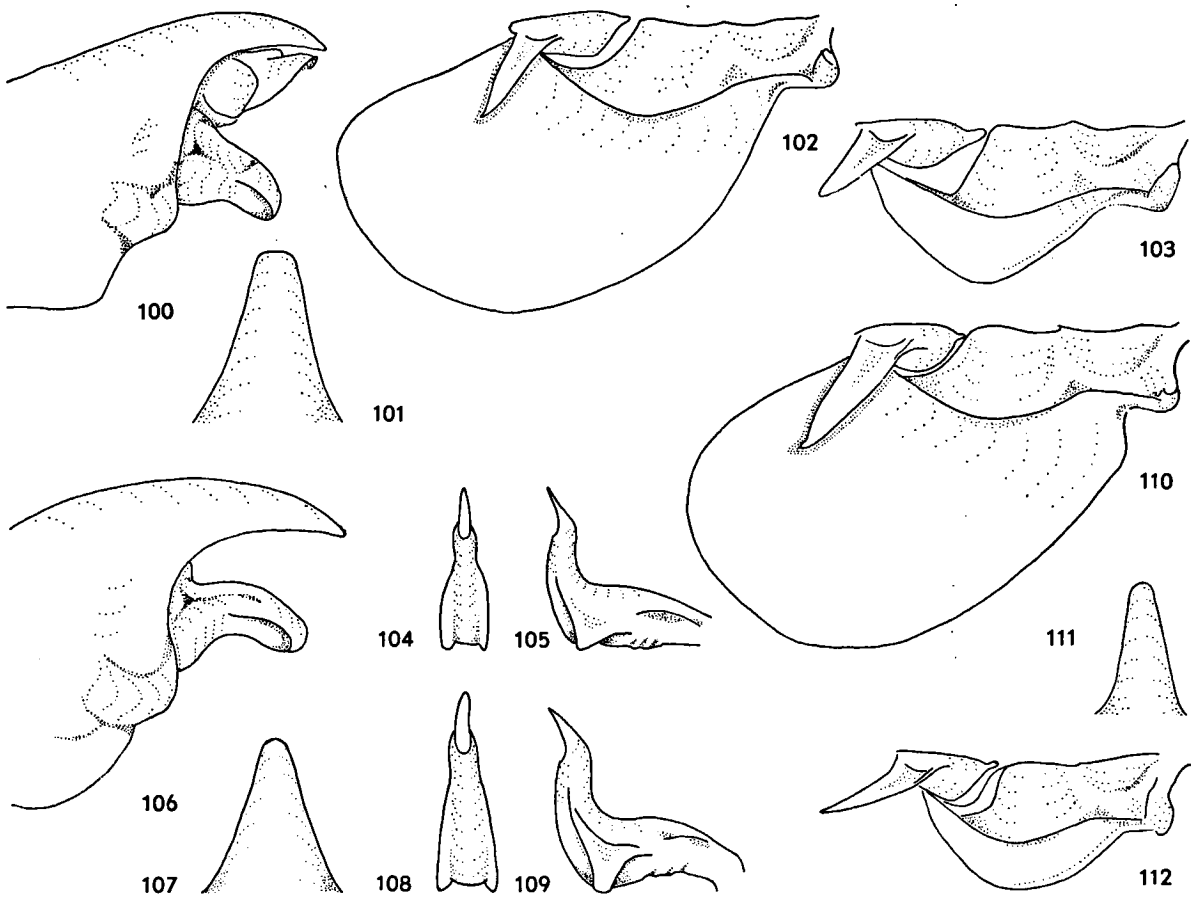
Male genitalia: Pygofer in lateral view (fig. 100) slender, dorsal margin straight, angularly bending into caudodorsal beak. Caudodorsal beak in lateral view slender, slightly erect and slightly longer than claspers. Beak in dorsal view (fig. 101) rather stout and either pointed or truncate at apex. Lateral lobes of pygofer with well developed, triangularly rounded protuberances. Clasper in lateral view (fig. 19) compared to that of the preceding three species quite different. Clasper ventrally broadens to its base closer to its apex, farther distad relative to the clasper heel, resulting in a shorter clasper hollow and longer basal part. Clasper stretched, apical part of clasper slender, more upright than in three preceding species, with a large, broad ventral hollow. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. A vague crest along proximal half of dorsal margin broadens at clasper base. Clasper heel low and less angular than in three preceding species, sometimes hardly conspicuous and, in that aspect, not unlike clasper of the three Bismarck species. Clasper base however, not broadening as in those species, but with dorsal and ventral margin parallel in lateral view. Clasper in dorsal view (fig. 20) suddenly narrowing to slender apical part. Aedeagus pore (fig. 104) broad and apically pointed. Aedeagus in lateral view (fig. 105) concave at apex; basal lobes very narrow, almost pointed.

Measurements: Body length ♂: 20.5-23.7 mm ($\bar{x}$ 22.0 mm) ♀: 15.5-20.1 mm ($\bar{x}$ 18.2 mm); tegmen length ♂: 20.5-24.0 mm ($\bar{x}$ 22.0 mm) ♀: 22.3-26.9 mm ($\bar{x}$ 24.2 mm); pronotum length ♂; 2.1-2.6 mm ($\bar{x}$ 2.4 mm) ♀: 2.3-2.8 mm ($\bar{x}$ 2.5 mm); mesonotum length ♂: 3.7-4.5 mm ($\bar{x}$ 4.1 mm) ♀: 3.6-5.4 mm ($\bar{x}$ 4.5 mm); head width ♂: 3.9-4.7 mm ($\bar{x}$ 4.3 mm) ♀: 3.9-5.2 mm ($\bar{x}$ 4.6 mm); width pronotal collar ♂: 5.3-6.6 mm ($\bar{x}$ 5.7 mm) ♀: 5.5-7.2 mm ($\bar{x}$ 6.3 mm).

Distribution (fig. 99): *B. cristovalensis* is known only from the most southern Solomon Islands Ulawa and San Cristobal.

Baeturia gressitti n. sp.
(Figs. 21-22, 106-112, 124)

Types: Holotype: "SOLOMON ISLANDS, Kieta district, Buka, Hanahan, 23.xii.1969, James E. Tolber, Cal. Acad. Sci. Coll." (print); "Collection of the CALIFORNIAN ACADEMY OF SCIENCES, San Francisco, Calif." (print), ♂, CAS; Paratypes: BUKA: same data as holotype but 21.xii.1969, 1♀; 26.xii.1969, 2♂; 27.xii.1969, 1♀, all CAS; Gagan, 40 m, 15.vi.1956,



Figs. 100-112. 100-105. *Baeturia cristovalensis*: 100, pygofer in lateral view, Warahito riv.; 101, male caudodorsal beak, Warahito riv.; 102 male operculum, paratype; 103, female operculum, Ahi Ahi; 104, aedeagus from behind, paratype; 105, aedeagus in lateral view, paratype. 106-112. *Baeturia gressitti*: 106, pygofer in lateral view, paratype Gagan; 107, male caudodorsal beak, paratype Gagan; 108, aedeagus from behind, holotype; 109, aedeagus in lateral view, holotype; 110, male operculum, paratype Gagan; 111, female caudodorsal beak, paratype Gagan; 112, female operculum, paratype Gagan.

J. L. Gressitt, 2♂, BPBM; same data but 16.vi.1956, 1♀, BPBM; Other material: BOUGAINVILLE: Kieta, v. 1934, J. L. Froggatt, 1♀, BMNH; Kieta 25.vi.1956, E. J. Ford Jr., 1♂, BPBM; Kieta, 30.xi.1959, T. C. Maa, 1♂, BPBM; Kieta, 17.ii.1968, Tawi, 1♂, BPBM; Kokure, 690 m. 14.vi.1956, E. J. Ford Jr., 1♂, ZMA; Simba mission, 28.vi.1956, E. J. Ford jr., 1♂, BPBM.

B. gressitti is the smallest of the unspeckled species of this group and very similar to *B. brandti*, the speckled species from the same locality. Apart from the absence of body speckling, *B. gressitti* has a more inflated abdomen and a slightly longer clasper.

Description

Body of males bicoloured; head and thorax green, abdomen light brown though one specimen entirely olive-green. Females yellow-green or bicoloured.

Opercula: Male operculum varying in size and shape, in general distal part square and angular as in *B. brandti*, sometimes more oblong (fig. 110) and in one specimen more rounded at lateral margin as in *B. cristovalensis*. Female operculum (fig. 112) sickle-shaped and erect.

Abdomen: Male abdomen yellow-brown to pale green, unspeckled but slightly darkened

dorsally. Segmental margins ochraceous or green. A vague lateroventral row of dark spots extends from segment 3 to 7, in darkest specimens. In lighter specimens this row often recognizable as unpigmented patches. Male abdomen 1.4-1.9 x as long as head and thorax. Female abdomen ochraceous to greenish, unspeckled. Segmental margins as well as vague row of lateroventral spots sometimes green. Female caudodorsal beak (fig. 111) long and slender, rounded or truncate at apex.

Male genitalia: Pygofer in lateral view (fig. 106) stout, dorsal margin broadly rounded into caudodorsal beak. Caudodorsal beak strongly bent, but slightly more erect in four of the Bougainville specimens. Beak broad at its base, pointed at its apex on Buka, truncate on Bougainville and about as long as the claspers. Lateral lobes of pygofer with well develloped, broadly rounded protuberances. Clasper in lateral view (fig. 21) of same shape as in *B. brandti*, but apical part distinctly longer. Clasper slightly bent down to apex halflength its dorsal margin. Clasper heel very prominent rectangular. Clasper with broad ventral hollow. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Dorsal margin concave, distad to dorsal crest (see arrow). Dorsal and ventral margin of clasper base parallel in lateral view. Clasper in dorsal view (fig. 22) slender at apex but gradually broadening to base, more slender than in the species described next. Aedeagus distinctly larger than in four preceding species. Aedeagus pore (fig. 108) broad and apically pointed. Aedeagus in lateral view (fig. 109) concave at apex, basal lobes more broadly rounded than in the speckled Solomon species.

Measurements: Body length ♂: 20.6-26.5 mm ($\bar{x}$ 23.4 mm ± 1.9) ♀: 16.9-18.8 mm ($\bar{x}$ 17.9 mm); tegmen length ♂: 21.5-27.0 mm ($\bar{x}$ 23.8 mm ± 1.5) ♀: 24.0-24.4 mm ($\bar{x}$ 24.2mm); pronotum length ♂: 2.0-2.8 mm ($\bar{x}$ 2.5 mm) ♀: 2.3-2.6 mm ($\bar{x}$ 2.5 mm); mesonotum length ♀: 3.9-5.2 mm ($\bar{x}$ 4.5 mm) ♀: 4.2-4.3 mm; head width ♂: 4.0-4.7 mm ($\bar{x}$ 4.3 mm) ♀: 4.2-4.4 mm ($\bar{x}$ 4.3 mm); width pronotal collar ♂: 5.4-6.9 mm ($\bar{x}$ 6.0 mm) ♀: 6.0-6.3 mm ($\bar{x}$ 6.1 mm).

Distribution (fig. 124): *B. gressitti* is only known from the northern Solomon Islands Buka and Bougainville.

Remark: Four males from Bougainville have a slightly higher pygofer with a more erect caudodorsal beak and are in these characters, intermediate between the Buka specimens and *B. bilebanarai* described next. Since these four specimens are on average slightly larger than the Buka specimens, it is possible that they must be regarded as a hybrid between *B. gressitti* and *B. bilebanarai*. They are regarded as belonging to *B. gressitti* on account of the broadly rounded dorsal margin of pygofer and a slender clasper in dorsal view.

Etymology: This species was named in honour of Dr. J. L. Gressitt, who collected part of the type series of this species and many other specimens, on which this study is based.

Baeturia bilebanarai n. sp.
(Figs. 23-24, 113-119, 124)

Types: Holotype: "SOLOMON IS. BOUGAINVILLE, Kukugai vill., 150 m, xii.1960" (print); "W. W. Brandt collector Bishop" (print), ♂, BPBM; Paratypes: BOUGAINVILLE: same data as holotype, 6♂, 1♀, BPBM; same data 1♂, ZMA; same data but x.1960, 2♂; xi.1960, 1♀, all BPBM; Other material: BOUGAINVILLE: Boku, 50 m, 3.vi.1956, E. J. Ford, 1♂, BPBM; Boku, 4-6.vi.1956, J. L. Gressitt, 1♂, BPBM; same data but 5.vi.1956, 1♂, ZMA; Buin, 2.vi.1956, J. L. Gressitt, 1♀, BPBM; Borioko, 300m, 6.vi.1956, J. L. Gressitt, 1♀, BPBM; Kieta, 26.vi.1956, E. J. Ford Jr., 1♀, BPBM; same data but 27.vi.1956, 1♂, 1♀, BPBM; Kieta, 17.ii.1968, Tawi, 1♂, BPBM; Kieta, 24.xii.1970, A & G. Daniëls, 1♂, Moul; Mutahi 18 km SE Tinputz, 700 m, 1-7.iii.1968, Tawi, 1♀, BPBM; Simba mission, 28.vi.1956, E. J. Ford Jr., 1♂, BPBM; same data but 28.vi-22.vii.1956, 1♀, BPBM; Togerao, 600 m, 21-25.iv.1968, R. Straatman, 1♀, BPBM; Tokinoitu, 20 m, 2.vi.1956, J. L. Gressitt, 1♀, ZMA; CHOISEUL: Kitipi river, 80 m, 17.iii.1964, P. Shanahan, 1♂, BPBM; Malangona, 30 m, 2 & 7.iii.1964, P. Shanahan, 2♂, BPBM; Same data but 10m, 5.iii.1964, 1♂, BPBM; SANTA YSABEL: Sukapisu, 900 m, 19.vi.1960, C. W. O'Brien, 1♂, BPBM; TREASURY: Treasury island, 83.50, 1♂, ZMA.

B. bilebanarai is unspeckled and much resembles *B. gressitti* but is much larger and can be separated from that species by a more slender and higher pygofer with a more erect caudodorsal beak; and a longer clasper, which is broader at its ventral base.

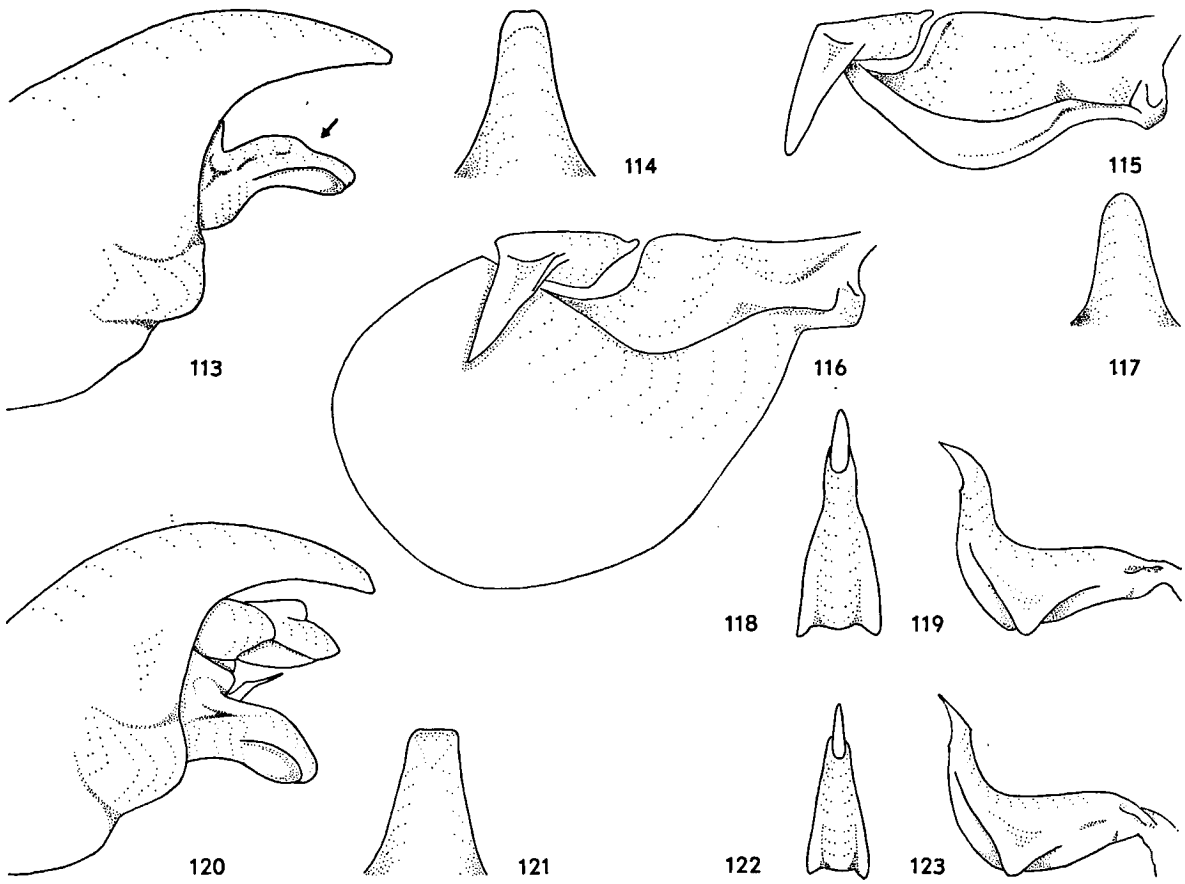
Description

Body of males light brown to pale yellowish green, the Santa Ysabel specimen reddened. One male from Bougainville has 9 apical areas in tegmen. Females very dark castaneous, very robust, one female bicoloured, with a green head and thorax and ochraeous abdomen.

Opercula: Male operculum (fig. 116): distal part very broad, squarely rounded. Distolateral edge broadly rounded, distomedial edge more narrowly rounded. Female operculum (fig. 115) sickle-shaped and erect.

Abdomen: Male abdomen light brown or slightly reddened. Segmental margins ochraceous. Some specimens have a lateroventral row of unpigmented patches on segments 3-7. Male abdomen 1.4-1.7 x as long as head and thorax. Female abdomen dark castaneous and unspeckled. Female caudodorsal beak (fig. 117) triangular, narrowly rounded at apex.

Male genitalia: Pygofer in lateral view (fig. 113) larger than in *B. gressitti*, more slender,



Figs. 113-123. 113-119. *Baeturia bilebanarai*: 113, pygofer in lateral view, holotype; 114, male caudodorsal beak, holotype; 115, female operculum, paratype; 116, male operculum, paratype; 117, female caudodorsal beak, paratype; 118, aedeagus from behind, paratype; 119, aedeagus in lateral view, paratype. 120-123. *Baeturia mendanai*: 120, pygofer in lateral view, Savo; 121, male caudodorsal beak, Savo; 122, aedeagus from behind, Honiaria; 123, aedeagus in lateral view, Honiaria.

dorsal margin almost straight and broadly rounded into slightly erect caudodorsal beak. Distal margin broadly rounded into ventral margin of beak. Caudodorsal beak in dorsal view (fig. 114) truncate, slightly bicuspidate at apex, about as long as claspers. Protuberances on lateral lobes of pygofer bluntly rounded and well developed. Clasper in lateral view (fig. 23) closely resembling that of *B. gressitti*, but broader at ventral base; the ventrodistal margin lies more distad relative to the distinct and angular clasper heel. Dorsal and ventral margin of clasper base parallel. Apical part of clasper slightly bent down, narrowly elongated and dorsally concave, distad to end of vague dorsal crest (see arrow fig. 113). Clasper hollow turned to a more ventral position and therefore seeming very long and slender in lateral view. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Clasper in dorsal view (fig. 24) much broader than in *B. gressitti*, broadly rounded at apex, gradually broadening to base. Aedeagus very large. Aedeagus pore (fig. 118) broad and pointed at apex. Aedeagus in lateral view (fig. 119) strongly concave at apex, basal lobes broadly rounded.

Measurements: Body length ♂: 25.0-30.3 mm ($\bar{x}$ 27.7 mm ± 1.4) ♀: 20.6-24.9 mm ($\bar{x}$ 22.2 mm); tegmen length ♂: 26.4-30.8 mm ($\bar{x}$ 28.5 mm ± 1.1) ♀: 27.0-31.7 mm ($\bar{x}$ 29.0 mm); pronotum length ♂: 2.9-3.5 mm ($\bar{x}$ 3.2 mm) ♀: 2.9-3.7 mm ($\bar{x}$ 3.5 mm); mesonotum length ♂: 4.9-5.5 mm ($\bar{x}$ 5.4 mm) ♀: 5.2-6.7 mm ($\bar{x}$ 5.9 mm); head width ♂: 4.9-5.4 mm ($\bar{x}$ 5.1 mm) ♀: 4.9-6.0 mm ($\bar{x}$ 5.5 mm); width pronotal collar ♂: 6.9-7.9 mm ($\bar{x}$ 7.3 mm) ♀: 7.0-9.1 mm ($\bar{x}$ 8.1 mm).

Distribution (fig. 124): *B. bilebanarai* is distributed over the western islands of the northern Solomon Arc, with records from Bougainville, Treasury, Choiseul and Santa Ysabel.

Etymology: Bilebanara was the name of a local chief on Santa Isabel, at the time of its discovery by Alvaro de Mendaña. He was the first Solomon islander to come in contact with western "civilization".

Baeturia mendanai n. sp.
(Figs. 25-26, 120-124)

Types: Holotype: "Guadalkanar I. Sol. Is. (print) i.1921 (written)"; "J. A. Kusche Coll." (print); "Collection of W. M. Giffard" (print), ♂, BPBM; Paratypes: same data as holotype, 8♂, 1♀, BPBM; same data 1♂, ZMA; Other material: FLORIDA: Tulagi, 24.ix. 1953, J. D. Bradley, Rennell island exped., 1♂, 1♀, BMNH; GIZO: Gizo I. New Georgia group, 50-120 m, 16-26.iv.1964, J. Sedlacek, 1♂, BPBM; GUADALCANAL: Guadalcanal, 9.v.1922, 1♂, BMNH; Guadalcanal, 14.vii.1933, R. J. A. W. Lever, 1♂, BMNH; Guadalcanal, 2.i.1943, PUR, 1♂, BPBM; Guadalcanal, 6.ii.1944, V. P. Knapp, 1♂, BPBM; same data but 15.ii.1944, 1♀, BPBM; Guadalcanal, 1944, L. J. Lipovski, 3♂, SEM; same data but 17.vii.1944, 1♂; 19.viii.1944, 1♀; 19.xii.1944, 1♀, all SEM; Guadalcanal, ii-ix.1945, H. M. Malkin, 1♂, CAS; Austen, Mt. 24.iii.1965, Roy. Soc. Exped., 1♂, BMNH; Betikama river (= Lunga river), viii.1960, W. W. Brandt, 1♂, BPBM; same data but ix.1960, 3♂, 3♀, BPBM; Gold ridge, 600 m, 22.vi.1956, J. L. Gressitt, 1♂, BPBM; Honiaria, 5-11.i.1954, J. D. Bradley, 1♂, 1♀, BMNH; Honiaria, 2.xii.1961, P. Greenslade, 1♀, BMNH; same data but 5.iii.1962, 1♀, BPBM; Honiaria, 27.vii-4.viii.1962, Noona Dan Exped. 1♂, 1♀, NRS; Honiaria, 27.iv.1964, R. Straatman, 2♂, BPBM; Honiaria, 17.ix.1965, Roy. Soc. Exped., 1♂, BMNH; Honiaria, 0-100 m, 5.x.1969, Y. Hirashima, 2♂, BPBM; Honiaria, 0-20 m, 18.i.1972, N. L. H. Krauss, 1♂, ZMA; Ilu, 21.ii.1953, E. S. Brown, 1♂, BMNH; Kiwi creek, 14.vii.1944, H. E. Milliron, 1♂, BPBM; same data but 15.vii.1944, 1♂; 18.ix.1944, 1♂, 1♀, BPBM; Kukum, 17.viii.1954, E. S. Brown, 1♂, BMNH; same data but 1.xii.1954, 1♀; 26.ii.1956, 1♀; 14.xii.1956, 1♂, 1♀, all BMNH; Kukum, 13.vii.1958, P. G. Fenmore, 1♂, BMNH; Kukum, 24.vi.1962, P. Greenslade, 1♀, BMNH; same data but 17.xii.1962, 1♀; 10.i.1963, 1♂; 18.i.1963, 1♀; 20.iv.1963, 1♀; 22.v.1963, 1♂, all BMNH; Lame, 300 m, 16.v.1960, C. W. O'Brien, 1♀, BPBM; Lame, Mt. Tutuve, 300 m, 17, 18.v.1960, C. W. O'Brien, 2♀, BPBM; Lavoro Pln., 1924, C. E. Hart, 1♂, AMS; Lunga, 9.ix.1947, 1♂, SEM; Lunga river, 10.iii.1935, R. A. Lever, 1♂, BMNH; same data but v-vi.1935, 2♂; 12.ix.1935, 1♂, 1♀, all BMNH; Lunga river (mouth), 15.v.1944, H. E. Milliron, 1♂, 3♀, BPBM; same data but 26.v.1944, 1♀; 3.vi.1944, 1♀; 8.vi.1944, 1♂, 1♀; 26.vi.1944, 1♂, all BPBM; same data but 3.vii.1944, 1♂; 6.xi.1944, 1♀, both ZMA; Lunga river 9.6 km SE Honiaria, 4.vi.1960, C. W. O'Brien, 1♀, BPBM; Lunga river Bridge, 17.vii.1960, J. Schenk, 1♂, MNP; Mavo river (= Umasani) 14 mi W Honiaria, 1.i.1963, J. Schenk, 1♀, CAS; Motukinau river (mouth), 2.v.1944, H. E. Milliron, 1♂, BPBM; Munda, 15-30 m, 14-15.vii.1959, J. L. Gressitt, 1♀, BPBM; Nuhu, 23.x.1965, Roy. Soc. Exped., 1♂,

BMNH; same data but 28.x.1965, 1 ♀, BMNH; Poha river, 6.x.1957, J. L. Gressitt, 1 ♂, BPBM; Roroni 35 km E Honiaria, 10 m, 6.v.1964, R. Straatman, 2 ♂, BPBM; same data but 9.v.1964, 1 ♂; 11.v.1964, 2 ♂, 1 ♀, all BPBM; Roroni, Tetere, 24.v.1960, C. W. O'Brien, 1 ♂, 1 ♀, BPBM; same data 1 ♀, ZMA; Suta, 500-1200 m, 27.vi.1956, J. L. Gressitt, 1 ♂, BPBM; Tambalia, 35 km W Honiaria, 30 m, 22-25.v.1964, J. & M. Sedlacek, 1 ♂, BPBM; same data but 26.v.1964, 1 ♂, BPBM; Tambalia, 27.v.1964, R. Straatman, 1 ♂, BPBM; Tathimani, Tetere, 12.v.1960, C. W. O'Brien, 1 ♂, BPBM; Tenaru, 21.vii.1954, E. S. Brown, 1 ♀, BMNH; same data but 20.xii.1955, 1 ♂, BMNH; Tenaru creek, 10-50 m, 7.v.1964, R. Straatman, 1 ♂, BPBM; Tenaru R., i.1945, G. E. Bohart, 1 ♂, CAS; Themeda Highway 50, 10.xii.1962, M. McQuillan, 2 ♂, BMNH; same data but 24.xii.1962, 1 ♀; 9.i.1963, 1 ♀; 21.i.1963, 2 ♂, 1 ♀, all BMNH; Zunga Estate, 8.vii.1933, H. T. Pagden, 1 ♀, BMNH; RUSSELL: Vandina, 30.v.1963, M. McQuillan, 1 ♂, BMNH; SAVO: Guadalcanal, Savo, 20.xii.1962, M. McQuillan, 1 ♂, BMNH; Savo, 1000 ft, 25.ii.1934, H. T. Pagden, 1 ♂, 1 ♀, ZMA; Savo, 500 ft, 24.vi.1935, R. A. Lever, 1 ♂, BMNH; Lamboni, 26.ii.1934, H. T. Pagden, 1 ♀, BMNH; VELLA-LAVELLA: Ulo crater, 10 m, 13.xii.1963, P. Shanahan, 1 ♂, BPBM.

B. mendanai is an unspeckled species, almost identical to the foregoing, The Guadalcanal specimens, especially the females, are smaller than *B. bilebanarai*, but on other islands *B. mendanai* is of about the same size as *B. bilebanarai*. *B. mendanai* can be separated from that species by its dorsally smoothly rounded clasper with a shorter clasper hollow, which seems broader in lateral view.

Description

Body of males light brown, unspeckled. Largest males on Savo island: 26-9-30.1 mm, smallest on Guadalcanal: 21.4-28.8 mm ($\bar{x}$ 24.6 mm). Male tegmen in most specimens shorter than body length. Females often bicoloured; head and thorax green and abdomen ochraceous, otherwise castaneous brown. Some females from Guadalcanal are distinctly larger than others, as robust as in *B. bilebanarai*, and might represent a separate species.

Opercula: Male operculum as in *B. bilebanarai* (fig. 116): distal part very broad, squarely rounded. Distolateral edge broadly rounded, distomedial edge more narrowly rounded. Female operculum sickle-shaped and erect.

Abdomen: Male abdomen light brown. Segmental margins ochraceous. In some specimens a lateroventral row of unpigmented patches on segments 3-7 can be discerned. Male abdomen 1.3-1.6 X as long as head and thorax. Female abdomen ochraceous or brown and unspeckled. Female caudodorsal beak triangular and narrowly rounded at apex.

Male genitalia: Pygofer in lateral view (fig. 120) slender, dorsal margin almost straight, broadly rounded into slightly erect caudodorsal beak. Distal margin broadly rounded into ventral margin of beak. Caudodorsal beak in dorsal view (fig. 121) truncate at apex, about as long as claspers. Bluntly rounded triangular protuberances on lateral lobes of pygofer well developed. Clasper in lateral view (fig. 25) closely resembling that of *B. bilebanarai* but the slightly bent down apical part not elongated and not concave dorsally. Apical part of clasper smoothly rounded dorsally, the vague dorsal crest often very short, and close to clasper base. Clasper hollow compared to *B. bilebanarai* turned to a more lateral position and seeming broader in lateral view. In some specimens, clasper hollow as in *B. marginata*, with elongate rim around its margin. Clasper however distinctly shorter than in that species and, in lateral view, narrower at its base. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. The distinct clasper heel angular in most specimens, though rounded in others. Clasper base broad, dorsal and ventral margin of clasper base parallel in lateral view. Clasper in dorsal view (fig. 26) broad at apex and gradually broadening to base. Aedeagus smaller than in *B. bilebanarai*. Aedeagus pore (fig. 122) broad and pointed at apex. Aedeagus in lateral view (fig. 123) strongly concave at apex, basal lobes broadly rounded.

Measurements: Body length ♂: 21.4-30.3 mm ($\bar{x}$ 24.9 mm ± 1.8) ♀: 16.1-22.6 mm ($\bar{x}$ 19.2 mm ± 1.0); tegmen length ♂: 21.0-29.9 mm ($\bar{x}$ 24.8 mm ± 1.8) ♀ 16.7-32.0 mm ($\bar{x}$ 25.3 mm ± 3.0); pronotum length ♂: 2.3-3.0 mm

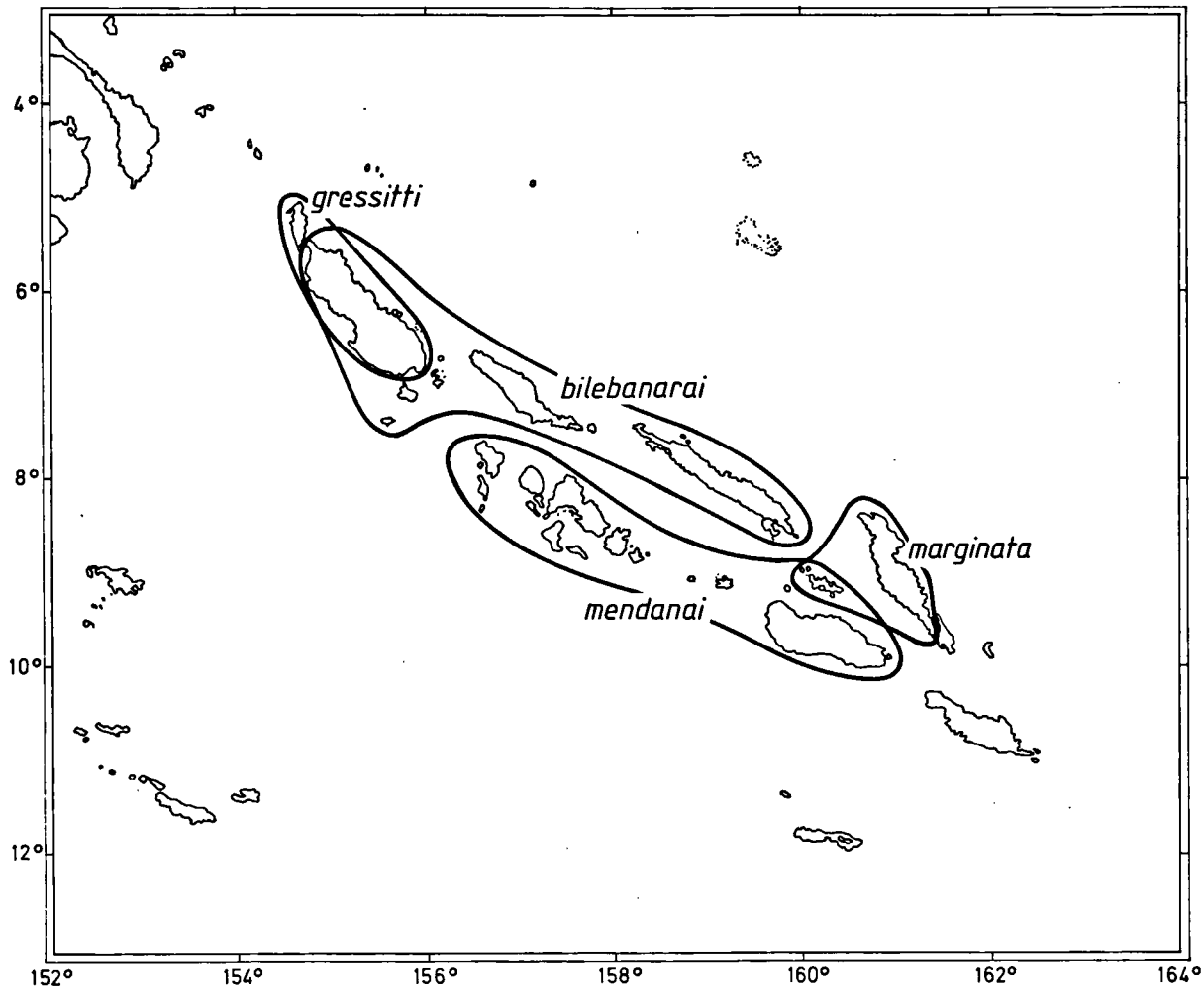


Fig. 124. Distribution of *Baeturia gressitti*, *Baeturia bilebanarai*, *Baeturia mendanai* and *Baeturia marginata*.

(x̄ 2.5 mm) ♀: 2.2-3.4 mm (x̄ 2.7 mm); mesonotum length ♂: 3.6-5.6 mm (x̄ 4.6 mm) ♀: 3.8-5.2 mm (x̄ 4.6 mm); head width ♂: 3.9-5.3 mm (x̄ 4.3 mm) ♀: 3.9-5.1 mm (x̄ 4.6 mm); width pronotal collar ♂: 5.4-7.3 mm (x̄ 5.7 mm) ♀: 5.5-7.5 mm (x̄ 6.6 mm).

Distribution (fig. 124): *B. mendanai* is distributed over the islands of the southern Solomon Arc, with records from Guadalcanal, Gizo, Florida, Russel, Savo, Vella-Lavella and possibly New Georgia, see remark following description of *B. sedlacekorum*.

Etymology: Alvaro de Mendaña discovered the Solomon Islands on the 7th of February 1568, when he landed on Santa Isabel.

Baeturia marginata n. sp.
(Figs. 27-28, 124-128)

Types: Holotype: "BRIT. SOLOMON ISL. SMALL GELA (= Florida isl), 1966, M. J. A. de Koster" (print) "Ex Alcohol"(print), ♂, ZMA; Paratypes: same data as holotype, 13♂, 1♀, ZMA; same data 1♂, BMNH; other material: FLORIDA: Florida, ii-iii.1945, J. R. Stuntz, 1♂, SEM; MALAITA: Malaita, 23.vi.1984, S. Lamond, 1♂, Moul; Auki, 20 m, 1-2.vi.1964, J. & M. Sedlacek, 2♂, 1♀, BPBM; same data but 3-5.vi.1964, 1♂, BPBM; Auki, 2-20 m, 22.ix.1957, J. L. Gressitt, 1♂, BPBM; Baunani, 10.ix.1954, E. S. Brown, 1♀ det. *bicolorata*, BMNH; Dala, 12.vi.1964, R. Straatman, 1♀, BPBM; Dala, 50 m, 15-18.vi.1964, M. Sedlacek, 1♂, BPBM; Malu'u, 29.v.1955, E. S. Brown, 1♂, BMNH; Matakwalao, 26.ix.1963, M. McQuillan, 2♀, BMNH.

B. marginata can easily be recognized by its peculiar clasper, which is distinctly longer and broader than in the foregoing species and has a ventrally elongated rim around its hollow.

Description

Body of males light brown or pale green, in two specimens from Malaita bicoloured; head and thorax green, abdomen brown. Florida specimens very light coloured, due to conservation in alcohol. Males on Florida on average slightly smaller than on Mailata, larger than the males of *B. mendanai* from Guadalcanal, though distinctly smaller than the Savo specimens of that species. Females ochraceous brown, or castaneous, with traces of green on thorax.

Opercula: Male operculum generally as squarely rounded as in *B. bilebanarai* (fig. 116), though rather variable in size, in some specimens medially elongated at distomedial edge, Distolateral edge broadly rounded. Lateral margin straight, distal margin more rounded. Female operculum (fig. 127) sickle-shaped and erect.

Abdomen: Male abdomen light brown or greenish, segmental margins slightly reddened. Abdomen unspeckled with sometimes latero-ventral row of unpigmented patches on segments 3-7. Male abdomen 1.6-1.8 x as long as head and thorax. Female abdomen ochraceous to castaneous brown, unspeckled. Female caudodorsal beak (fig. 128) pointed or truncate at apex.

Male genitalia: Pygofer in lateral view (fig. 125) slender, dorsal margin almost straight, broadly rounded into slightly erect caudodorsal beak. Distal margin broadly rounded into ventral margin of beak. Caudodorsal beak in dorsal view (fig. 126) truncate at apex, though pointed in one specimen, and very short, shorter than claspers. Bluntly rounded triangular protuberances on lateral lobes of pygofer well developed. Clasper in lateral view (fig. 27) resembling that of *B. mendanai* but much longer, and broader at its base. Apical part of clasper smoothly rounded dorsally and slightly bent down. A short and vague dorsal crest, at most proximal part of clasper, bends upwards into very large and slightly rounded clasper heel. Margin around apical part of clasper hollow slightly elongated ventrally, forming a rim around clasper hollow. In some species this feature is conspicuous at medial margin of hollow only. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Clasper base very broad in lateral view; dorsal and ventral margin wide apart, but almost parallel. Clasper in dorsal view (fig. 28) broad at apex and gradually broadening to base. Aedeagus very large, larger than in *B. mendanai*. Aedeagus pore (fig. 129) extremely long, broad and pointed at apex. Aedeagus in lateral view (fig. 130) strongly concave at apex, basal lobes broadly rounded.

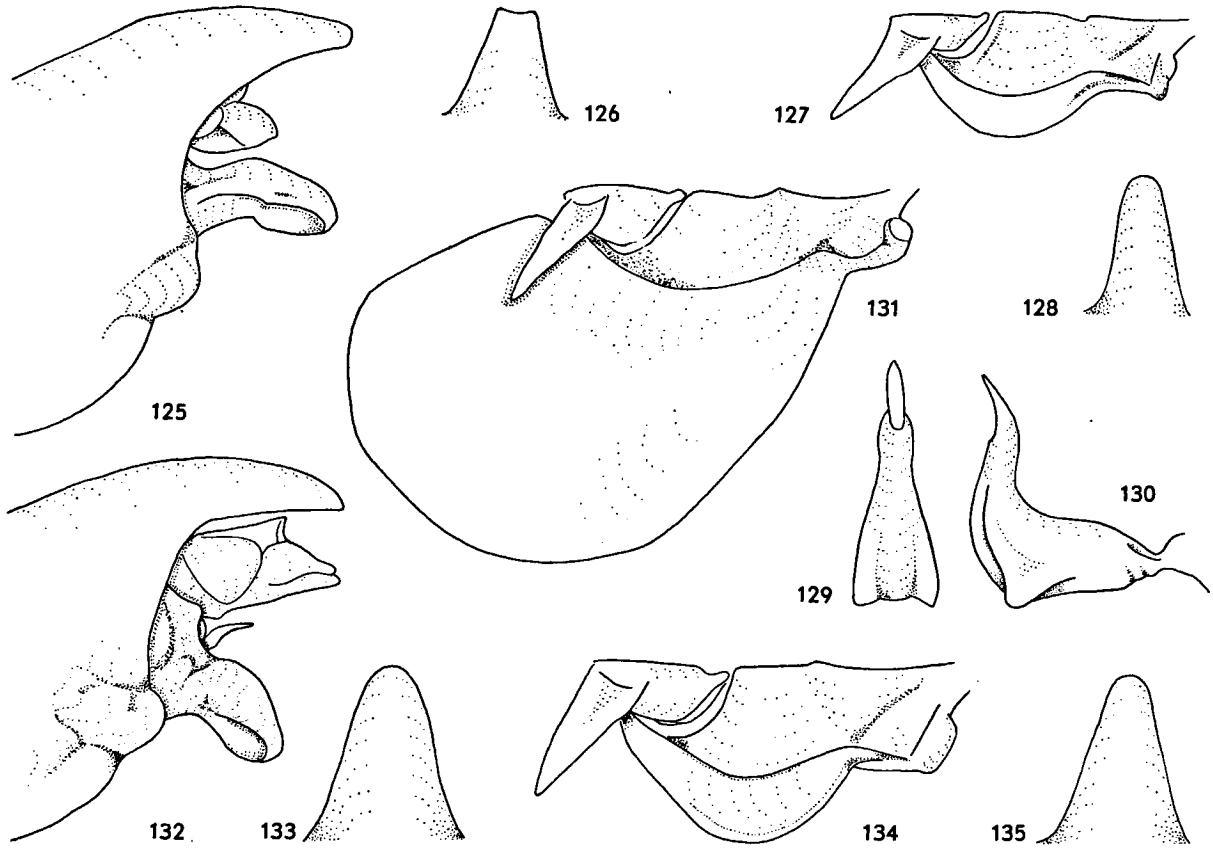
Measurements: Body length ♂:23.0-27.3 mm ($\bar{x}$ 25.2 mm ± 1.2) ♀: 17.8-21.5 mm ($\bar{x}$ 19.6 mm); tegmen length ♂: 23.0-27.0 mm ($\bar{x}$ 25.3 mm ± 1.0) ♀: 24.0-27.7 mm ($\bar{x}$ 26.0 mm); pronotum length ♂: 2.3-2.9 mm ($\bar{x}$ 2.6 mm) ♀: 2.5-2.8 mm ($\bar{x}$ 2.6 mm); mesonotum length ♂: 4.3-5.3 mm ($\bar{x}$ 4.8 mm) ♀: 4.2-5.4 mm ($\bar{x}$ 4.8 mm); head width ♂: 4.1-5.2 mm ($\bar{x}$ 4.8 mm) ♀: 4.4-5.3 mm ($\bar{x}$ 5.0 mm); width pronotal collar ♂: 5.6-7.3 mm ($\bar{x}$ 6.6 mm) ♀: 6.1-7.3 mm ($\bar{x}$ 6.7 mm).

Distribution (fig. 124): *B. marginata* is only known from Florida and Malaita islands. No unspeckled specimens from the Solomon Islands east of Malaita were available however.

Etymology: This species is named after the elongate rim around clasper hollow.

Baeturia as represented on Vanuatu

Boulard (1979) described four *Baeturia* species from four different islands of the New Hebrides (Vanuatu): *B. edauberti*, *B. aubertae*, *B. efatensis* and *B. epiensis*. *B. aubertae* and *B. epiensis* were described from one male specimen only, *B. edauberti* and *B. efatensis* from eight and four males and some females respectively. Thanks to the kindness of Dr G. M. Nishida, BPBM, I had the opportunity to study a much larger number of specimens from Vanuatu. Com-



Figs. 125-135. 125-130. *Baeturia marginata*: 125, pygofer in lateral view, holotype; 126, male caudodorsal beak, holotype; 127, female operculum, Auki; 128, female caudodorsal beak, Auki; 129, aedeagus from behind, holotype; 130, aedeagus in lateral view, holotype. 131-135. *Baeturia boulardi*: 131, male operculum, holotype; 132, pygofer in lateral view, holotype; 133, male caudodorsal beak, holotype; 134, female operculum, paratype; 135, female caudodorsal beak, paratype.

parison of the holotypes of Boulards species with the additional material resulted in the recognition of only two species.

Though small differences seem to exist in average body size or tegmen length among the different island populations, I found that the variability of the Espiritu Santo population alone, is as wide as that described by Boulard for these four species together. This leads to the conclusion that Boulard's species from Vanuatu belong to one and the same species, for which I propose the name *B. edauberti*, the first species described in Boulard's paper.

Specimens from Vanua-Lava, differ considerably from *B. edauberti* in the shape of the clasper, pygofer and operculum and are here described as *B. boulardi* n. sp.

Baeturia boulardi n. sp.
(Figs. 29-30, 131-137, 148)

Types: Holotype "Vanua-Lava, Banks Is, x.1929, L. E. Cheesman BM 1930-8" (print) ♂, BMNH; same data but xi.1929, 1♂, BMNH; Sola, 5-11.viii.1958, Borys Malkin, 1♂, BPBM.

B. boulardi is a slightly speckled species, closely resembling the unspeckled *B. marginata*. Apart from the body speckling, this species can be separated from *B. marginata* by the shorter clasper and an apically rounded caudodorsal beak.

Description

Body reddish brown, slightly brown speckled. Females grey-brown.

Opercula: Male operculum (fig. 131) squarely rounded and slightly broader than in the three foregoing species. Distolateral edge broadly rounded. Lateral margin straight, distal margin broadly rounded, distomedial edge more narrowly rounded. Female operculum (fig. 134) sickle-shaped or slightly angular and erect.

Abdomen: Male abdomen light brown or greyish, brown speckled, segmental margins red. A clear lateroventral row of dark spots on segments 3-7 or 8. Male abdomen 1.4-1.6 X as long as head and thorax. Female abdomen grey-brown, intensely speckled. Female caudodorsal beak (fig. 135) very stout and broadly rounded at apex.

Male genitalia: Pygofer in lateral view (fig. 132) slender, dorsal margin almost straight, angularly rounded into slightly erect caudodorsal beak. Distal margin of pygofer angularly bent into ventral margin of beak. Caudodorsal beak in dorsal view (fig. 133) very stout, broadly rounded at apex and shorter than claspers. Bluntly rounded triangular protuberances on lateral lobes of pygofer well developed. Clasper in lateral view (fig. 29) resembling that of *B. marginata*, but shorter. Apical part of clasper smoothly rounded dorsally and slightly bent down. A very short and weak dorsal crest at proximal part of clasper, bends upwards into large and angular clasper heel. In one paratype, medial margin around apical part of clasper hollow slightly ventrally elongated, forming a rim around clasper hollow as in *B. marginata*. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Clasper base very broad in lateral view; dorsal and ventral margin wide apart, but almost parallel. Clasper in dorsal view (fig. 30) broad at apex and gradually broadening to base. Aedeagus pore (fig. 136) very broad and apically pointed. Aedeagus in lateral view (fig. 137) strongly concave at apex, basal lobes broadly rounded.

Measurements: Body length ♂: 23.3-26.3 mm ♀: 20.1 and 24.0 mm; tegmen length ♂: 23.8-26.7 mm ♀: 29.6 and 30.6 mm; pronotum length ♂: 2.6-2.7 mm ♀: 3.2 mm; mesonotum length ♂: 4.9-5.2 mm ♀: 4.6 mm; head width ♂: 5.1 mm ♀: 5.4 and 6.2 mm; width pronotal collar ♂: 7.0-7.2 mm ♀: 7.4 and 8.4 mm.

Distribution (fig. 148): *B. boulardi* is possibly endemic on Vanua-Lava of the Bank Islands, in the Vanuatu chain. No material from nearby islands was available however.

Etymology: This species was named in honour of Dr M. Boulard, who first described *Baeturia* from Vanuatu.

Baeturia edauberti Boulard, 1979.
(Figs. 31-32, 138-144, 148)

Baeturia edauberti Boulard, 1979: 102-104, fig. A-B, fig 1-5, 12; Duffels & Van der Laan, 1985: 252.

Baeturia aubertae Boulard, 1979: 104, fig. 6-7, 12; Duffels & Van der Laan, 1985: 251 (n. syn.).

Baeturia efatensis Boulard, 1979: 104-106, fig. C-D, fig 8-9, 12; Duffels & Van der Laan, 1985: 252 (n. syn.).

Baeturia epiensis Boulard, 1979: 106, fig. E-F, fig. 10-12; Duffels & Van der Laan, 1985: 252 (n. syn.).

The holotype bears the following labels: "NOUVELLES HÉBRIDES I. Tanna, Isangel" (print); "Museum Paris 1935-1936, E. Aubert de la Rüe" (print); "Holotype ♂ *Baeturia edauberti* n. sp. (written) Michel Boulard det. 19 (print) 79 (written)".

Material examined: VANUATU (New Hebrides): ANEITYUM: Aneit, Wallace, 811.16, 1♂, BMNH; Red Crest I., 1200 ft, 3m NE of Anlegauhat, iii.1955, L. E. Cheesman, 4♀, BMNH; same data but iv-v.1955, 4♀; v.1955. 2♀; v-vi.1955, 1♂, 1♀; vi.1955, 2♂, 1♀, all BMNH; EFATÉ: I. Efaté, 1934, E. Aubert de la Rüe, ♂ holotype, ♀ allotype and 2♀ paratypes *B. efatensis* Boulard, MNP; Sandwich I. [Efaté], 5.ii.1904, 1♂, AMS; same data but 14.ix.1906, 2♂, AMS; Limestone plateau N of Maat, 100 m, 20.viii.1957, J. L. Gressitt, 2♀, BPBM; Maat (Mat, Ambryn vill.), 3 m, 15.viii.1957, J. L. Gressitt, 1♂, 1♀, BPBM; same data but 18.viii.1957, 1♂, BPBM; Port Villa, 1♂, MNP; Port Villa, iv.1969, 1♀, MNP; Port Villa (Isle Vate), 15.v.1973, Lachaise, 1♂ paratype *B. efatensis* Boulard, 1♀, MNP; Vila, 15.ix.1922, T. T. Barnard, 1♂, AMS; Vila, viii.1950, N. L. H. Krauss, 1♂, BPBM; same data but ii.1959, 1♂; 0-100m, iii.1970 & i.1973, 2♀, BPBM; EPI: Bay de Nelson, 1935-1936, E. Aubert de la Rüe, ♂ holotype, ♀ allotype and 4♀ paratypes *B. epiensis* Boulard, MNP; Vaemali, 150m, 9-20.viii.1967, J. & M. Sedlacek, 2♀, BPBM; ERROMANGO: Anapan, 1935-1936, E. Aubert de la Rüe, ♂ holotype *B. aubertae* Boulard, MNP; ESPIRITU SANTO: Espiritu Santo, 16.iv.1943. W. Bauer, 1♂, CAS; same data but 19.iv.1943, 1♀, CAS; Espiritu Santo, ix-xii.1943, Gilbert Banner, 2♂, AMNH; same data but v.1944, 1♀, AMNH; Hogg Harbour, 10.i.1929, T. T. Barnard, 1♂,

AMS; Namatasopa SW, 300 m, 29.viii.1957, J. L. Gressitt, 2♂, 3♀, BPBM; same data but 1-2.ix.1957, 1♀ BPBM; same data 1♀, ZMA; above Namatasopa, 400 m, 30.viii.1957, 1♂, 3♀, BPBM; same data 1♂, ZMA; below Namatasopa, 250 m, 1.ix.1957, 1♀, BPBM; Narango, 90 m, v.1960, W. W. Brandt, 3♂, 6♀, BPBM; same data but vi.1960, 7♀, BPBM; same data 1♂, 1♀, ZMA; same data but vii.1960, 6♂, 6♀, BPBM; Tasmalum, 5 m, 26.viii.1960, J. L. Gressitt, 1♂, 1♀, BPBM; West Santo, Hog Harbour, x.1938, J. R. Baker, 1♂, BMNH; West Santo, Tatavil, 4000 ft, xi.1933, J. R. Baker, 1♂, BMNH; LAMEN: Lamen is., 0-100 m, i.1976, N. L. H. Krauss, 1♂, BPBM; MALEKULA: Malekula, i.1930, L. E. Cheesman, 1♂, 1♀, BMNH; same data but xii.1929, 1♂, BMNH; Lakatoro, 22-30.ix.1967, J. & M. Sedlacek, 1♂, BPBM; same data but 29.ix.1967, 1♂, BPBM: Lamap, 8-21.ix.1967, J. & M. Sedlacek, 1♀, BPBM; same data but 19-21.ix.1967, 3♂, 1♀, BPBM; same data 1♂, ZMA; Ounua, ii.1929, L. E. Cheesman, 2♂, 1♀, BMNH; same data but iii-iv.1929, 4♀, BMNH; Vallée de la Pangkumu, 1935-1936, E. Aubert de la Rüe, 1♀, MNP; PENTACOST: Pentacost island, 14.iii.1964, R. Straatman, 2♂, BPBM; SANTA CRUZ: Graciosa bay, S. M. Schiff, Saida leg., 1893, 1♂, NhMW; Peu Vanikoro, viii.1926, E. Troughton & A. Livingstone, 1♀, AMS; Reef Is. Santa Cruz Gp., 23.vii.1926, E. Troughton & A. Livingstone, 1 ♂, AMS; Vanikoro isl., P. H. François, 1 ♀, BMNH; TANNA: I. Tanna, 1934, E. Aubert de la Rüe, 2 ♂, 2♀, MNP; Tanna, 16.xii.1981, J. Gutierez, 2 ♀, MNP; Isangel, 1935-1936, E. Aubert de la Rüe, ♂ holotype ♀ allotype and 5 ♂, 5 ♀ paratypes *B. edauberti* Boulard.

Remark: In the collection of the BPBM I found a male specimen with a locatlity label: "Borneo Br. N, Tenompok, 30 mi E Jesselton, 1460 m, 19.ii.1959, T. C. Maa". This specimen clearly belongs to *B. edauberti* and is presumably wrongly labelled.

B. edauberti can easily be recognized by its short, broad and angular operculum and its massive, broadly ridged clasper, though it must be remarked that the peculiar operculum shape also occurs in one specimen of *B. reijnhoudti* and two specimens of *B. sedlacekorum*. *B. edauberti* is further characterized by a stout, dorsally rounded pygofer with a short truncate, slightly bicuspidate, caudodorsal beak. The females of this species too have a truncate caudodorsal beak, a feature sporadically occurring in some other species of the *bloetei* group, but quite common in the *B. nasuta* group (de Boer, 1982).

Remark: Some specimens from Malekula (2♀) Espiritu Santo (1♂, 6♀) and Tanna (1♂, 1♀), have a very clear light brown and unspeckled continuous middorsal band, running over the whole length of body, from postclypeus to apex of caudodorsal beak (fig. 164). These specimens could not otherwise be separated from *B. edauberti*.

A comparable, though less distinct middorsal band can be observed in some males of *B. brandti* from Buka, some females of *B. maddisoni* from Tutuila (Samoa) and some species, belonging to other groups of *Baeturia* from New Guinea and Maluku.

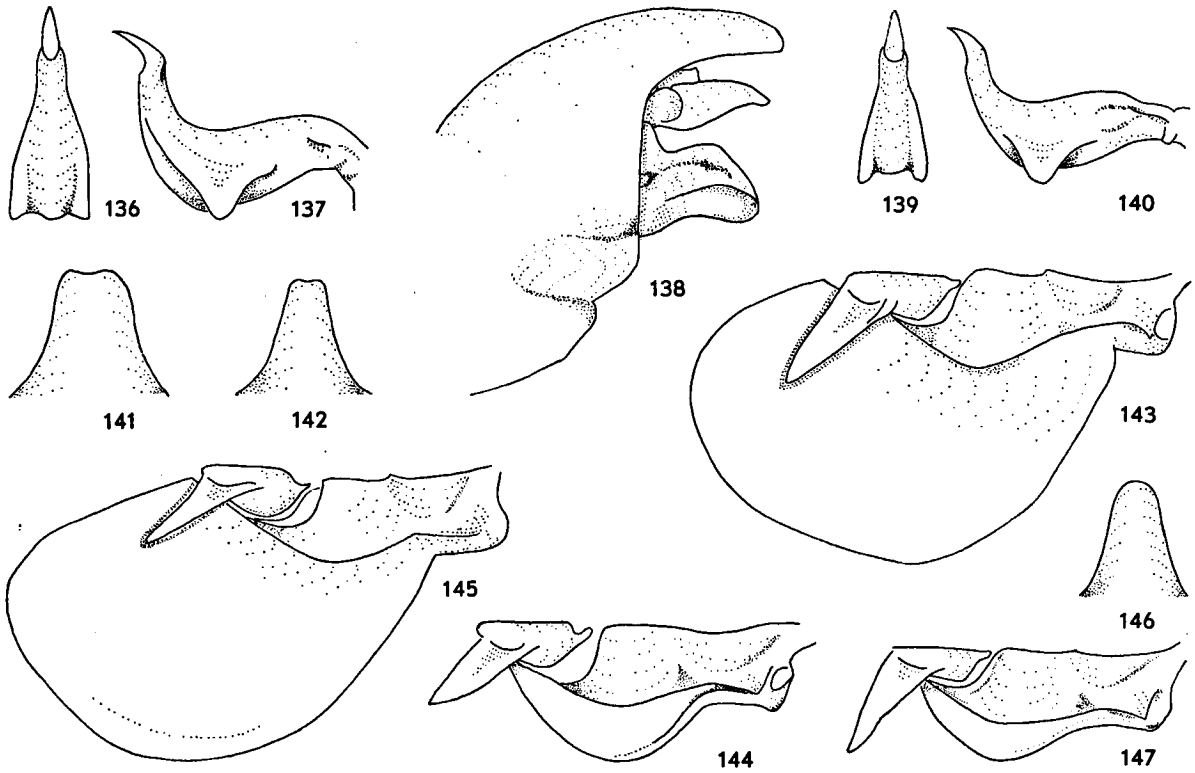
Description

Body of males light brown to reddish brown, brown speckled, though unspeckled in one specimen from Aneityum. The male from Epi (holotype *B. epiensis* Boulard) and two males from Espiritu Santo with very short and slender tegmina, distinctly shorter than bodylength. Females ochraceous to castaneous brown and intensely speckled.

Opercula: Male operculum (fig. 143) distal part very short and angular, wider than long; the straight lateral margin shorter than the more rounded distal margin. Distolateral and distomedial edge narrowly rounded to angular, very angular in some Aneityum specimens. Operculum angularly rounded, almost pointed at its most medial margin. Female operculum (fig. 144). sickle-shaped and erect.

Abdomen: Male abdomen reddish brown and speckled. Segmental margins bright red. A clear lateroventral row of dark spots extends from segment 3 to 7. Male abdomen 1.3-1.8 x as long as head and thorax. Female abdomen red-brown to castaneous, intensely speckled, sometimes with a vague row of lateroventral spots; segmental margins bright red. Female caudodorsal beak (fig. 142) truncate at apex.

Male genitalia: Pygofer in lateral view (fig. 138) stout, dorsal margin rounded into short, stout caudodorsal beak. Caudodorsal beak strongly bent, broad at its base and broadly truncate, slightly bicuspidate, at apex. Beak



Figs. 136-147. 136-137. *Baeturia boulardi*: 136, aedeagus from behind, paratype; 137, aedeagus in lateral view, paratype. 138-144. *Baeturia edauberti*: 138, pygofer in lateral view, Aneityum; 139, aedeagus from behind, paratype; 140, aedeagus in lateral view, paratype; 141, male caudodorsal beak, Aneityum; 142, female caudodorsal beak, Santa Cruz; 143, male operculum, paratype; 144, female operculum, Santa Cruz; 145-147. *Baeturia rotumae*: 145, male operculum, holotype; 146, female caudodorsal beak, paratype; 147, female operculum, paratype.

shorter than claspers. Lateral lobes of pygofer with small bluntly rounded protuberances. Clasper in lateral view (fig. 31) slightly varying in length and shape. This variability does not suggest a geographic subdivision of the species however. Clasper slightly bent down to apex. Dorsal margin concave distad to dorsal crest. Dorsal crest very prominent, broad at its distal end. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Clasper base more slender than in *B. boulardi*, dorsal and ventral margin parallel in lateral view. Clasper in dorsal view (fig. 32) slender at apex and abruptly broadening to base. Aedeagus pore (fig. 139) broad and apically pointed. Aedeagus in lateral view (fig. 140) concave at apex, basal lobes broadly rounded or pointed at apex.

Measurements: Body length ♂: 18.4-25.6 mm ($\bar{x}$ 22.5 mm ± 1.9) ♀: 16.3-21.5 mm ($\bar{x}$ 19.3 mm ± 1.2); tegmen length ♂: 20.1-25.7 mm ($\bar{x}$ 22.9 mm ± 1.2) ♀: 22.3-27.8 mm ($\bar{x}$ 25.4 mm ± 1.4); pronotum length ♂: 2.2-2.9 mm ($\bar{x}$ 2.6 mm) ♀: 2.6-3.0 mm ($\bar{x}$ 2.8 mm); mesonotum length ♂: 3.9-5.1 mm ($\bar{x}$ 4.5 mm) ♀: 4.0-5.4 mm ($\bar{x}$ 4.9 mm); head width ♂: 4.2-5.0 mm ($\bar{x}$ 4.4 mm) ♀: 4.3-5.1 mm ($\bar{x}$ 4.6 mm): width pronotal collar ♂: 5.4-7.0 mm ($\bar{x}$ 6.2 mm) ♀: 5.8-7.2 mm ($\bar{x}$ 6.6 mm).

Distribution (fig. 148): *B. edauberti* is endemic to Vanuatu and distributed throughout this island chain, with records from Aneityum, Efaté, Epi, Erromango, Espiritu Santo, Lamen, Malekula, Pentacost, Santa Cruz and Tanna.

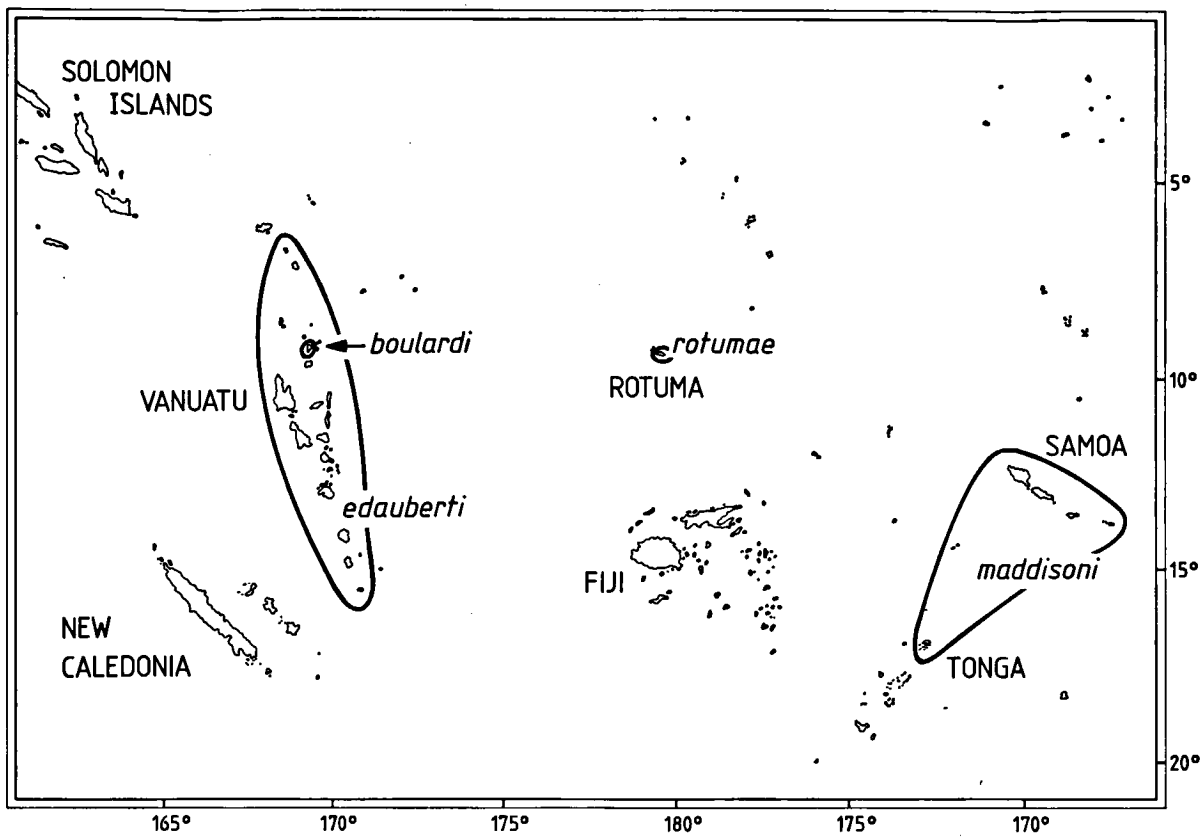


Fig. 148. Distribution of *Baeturia boulardi*, *Baeturia edauberti*, *Baeturia rotumae* and *Baeturia maddisoni*.

Baeturia rotumae Duffels, 1988.
(Figs. 33-34, 145-152)

Baeturia rotumae Duffels, 1988: 99-100, figs. 191-196.

The holotype bears the following labels: "FIJI, Rotuma I. (print), 17-27.iv (Written), 1971, G. S. Robinson (print)" / "Holotype, Baeturia rotumae Duffels 1988, det. J. P. Duffels 1987".

Material examined: ROTUMA: Rotuma, 17-27.iv.1971, G. S. Robinson, ♂ holotype, 1♂, 1♀ paratype, BMNH; same data 1♂, ZMA; Oinafa, 17.iv.1971, G. S. Robinson, 1♂ paratype, BMNH; same data but 18.iv.1971, 1♂ paratype, BMNH.

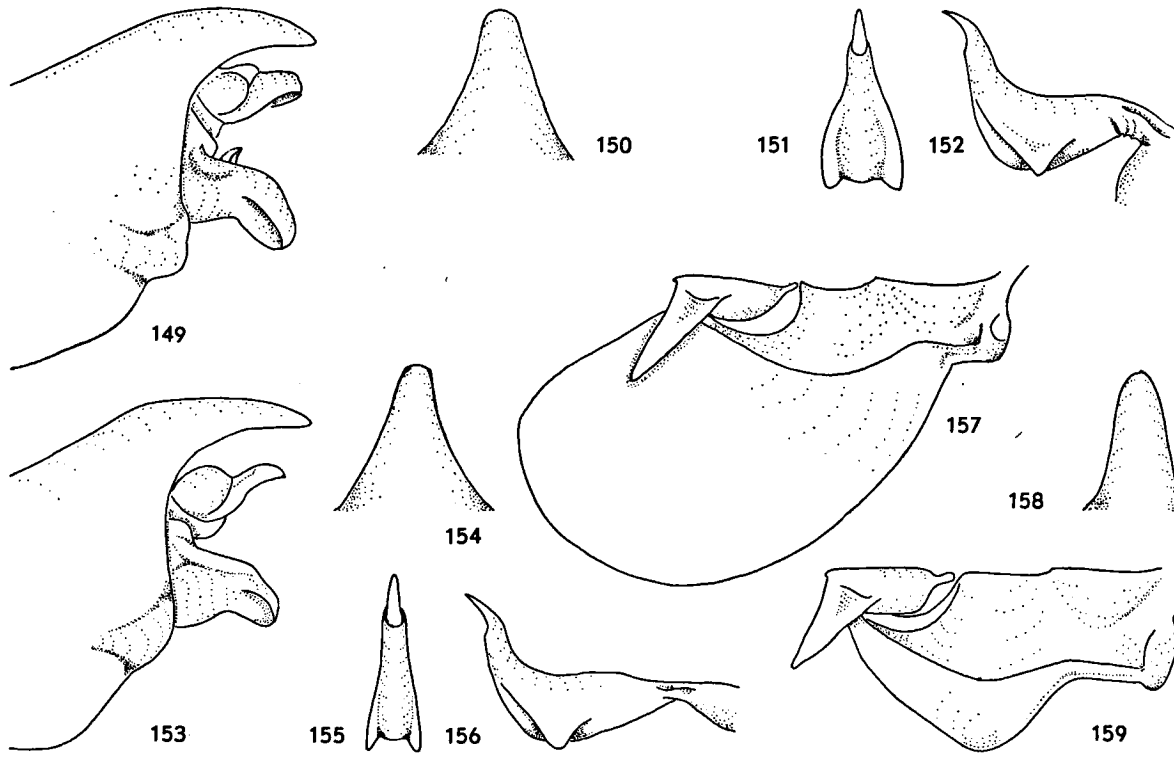
B. rotumae is a moderately sized speckled species closely resembling *B. boulardi* from Vanua-Lava, but *B. rotumae* is smaller and more intensely speckled. Its clasper is shorter and has a more rounded dorsal heel.

Description

Body of males ochraceous to greyish brown. Female grey-brown.

Opercula: Male operculum (fig. 145). Distal part squarely rounded. Lateral margin straight, distal margin rounded. Distolateral edge broadly rounded, distomedial edge more narrowly rounded. Female operculum (fig. 147) very small, sickle-shaped and erect.

Abdomen: Male abdomen light brown or greyish, intensely speckled. Segmental margins slightly reddened. Lateroventral row of dark spots on segms 3-8 very clear. Male abdomen 1.6-1.7 x as long as head and thorax. Female abdomen grey-brown, intensely speckled. Female caudodorsal beak (fig. 146) narrowly rounded at apex.



Figs. 149-159. *Baeturia rotumae*: 149, pygofer in lateral view, holotype; 150, male caudodorsal beak, holotype; 151, aedeagus from behind, paratype; 152, aedeagus in lateral view, paratype; 153-157. *Beaturia maddisoni*, male paratype Tutuila, Pagatogo: 153, pygofer in lateral view; 154, caudodorsal beak; 155 aedeagus from behind; 156, aedeagus in lateral view; 157, operculum. 158-159. *Baeturia madissoni*, female paratype Upolu, Vaivace: 158, caudodorsal beak; 159, operculum.

Male genitalia: Pygofer in lateral view (fig. 149) slender, dorsal margin almost straight, angularly rounded into slightly erect caudodorsal beak. Distal margin straight, broadly rounded into ventral margin of beak. Caudodorsal beak in dorsal view (fig. 150) broad at base, narrowly rounded at apex and shorter than claspers. Bluntly rounded triangular protuberances on lateral lobes of pygofer well developed. Clasper in lateral view (fig. 33) resembling that of *B. boulardi*, but much shorter. Clasper dorsally smoothly rounded at apex, dorsal margin very straight between clasper heel and rounded apex, with a vague crest along straight part. Dorsal margin not, or very slightly concave distad to dorsal crest. Clasper heel less prominent than in *B. boulardi*, more rounded. Margin of clasper hollow forming a right angle with distoventral margin of clasper base. Clasper base very broad as in *B. boulardi*, dorsal and ventral margin wide apart, but parallel in lateral view. Clasper in dorsal view (fig. 34) broad at apex and gradually broadening to base. Aedeagus seen from behind (fig. 151) very broad and inflated, aedeagus pore broad and apically pointed. Aedeagus in lateral view (fig. 152) strongly concave at apex; basal lobes broadly rounded.

Measurements: Body length ♂: 21.3-24.0 mm ($\bar{x}$ 22.6 mm) ♀: 19.2 mm; tegmen length ♂: 22.1-23.3 mm ($\bar{x}$ 22.5 mm) ♀: 24.7 mm; pronotum length ♂: 2.4-2.6 mm ($\bar{x}$ 2.5 mm) ♀: 2.5 mm; mesonotum length ♂: 3.8-4.2 mm ($\bar{x}$ 4.1 mm) ♀: 4.6 mm; head width ♂: 4.4-4.6 mm ($\bar{x}$ 4.5 mm) ♀: 4.5 mm; width pronotal collar ♂: 5.7-6.2 mm ($\bar{x}$ 6.0 mm) ♀: 6.3 mm.

Distribution (fig. 148): *B. rotumae* is endemic on Rotuma Island.

Remark: The paratype from Oinafa, 18.iv.1971, misses postdiscal vein no. 4 in both tegmina.

Baeturia maddisoni Duffels, 1988
(Figs. 35-36, 148, 153-159)

Baeturia exhausta Myers, 1928: 60-63 figs. 8-9, 14-17 (non Guérin Méneville, 1831).
Baeturia maddisoni Duffels, 1988: 94-99 figs. 178-190.

The holotype bears the following labels: "AMERICAN SAMOA, Tutuila, Tapitumu Farm, 16.xii.1963". (print); "N.R. Spencer, collector, BISHOP" (print) / "Holotype, *Baeturia maddisoni*, Duffels, 1987, det. J. P. Duffels, 1987" (written). Material examined is the same as listed by Duffels (1988), suppleted with about 90 ♂ and 300 ♀ from Samoa, on loan from the BPBM. The additional material came from the same islands and predominantly the same localities as the material listed in the type series.

B. maddisoni is the largest of the speckled species of this group, and can be recognized by an angularly bent clasper, with straight dorsal margin, and a narrow apex in dorsal view. *B. maddisoni* closely resembles *B. rotumae* but, according to the narrowing clasper apex in dorsal view, probably closer related to *B. edauberti*.

Description

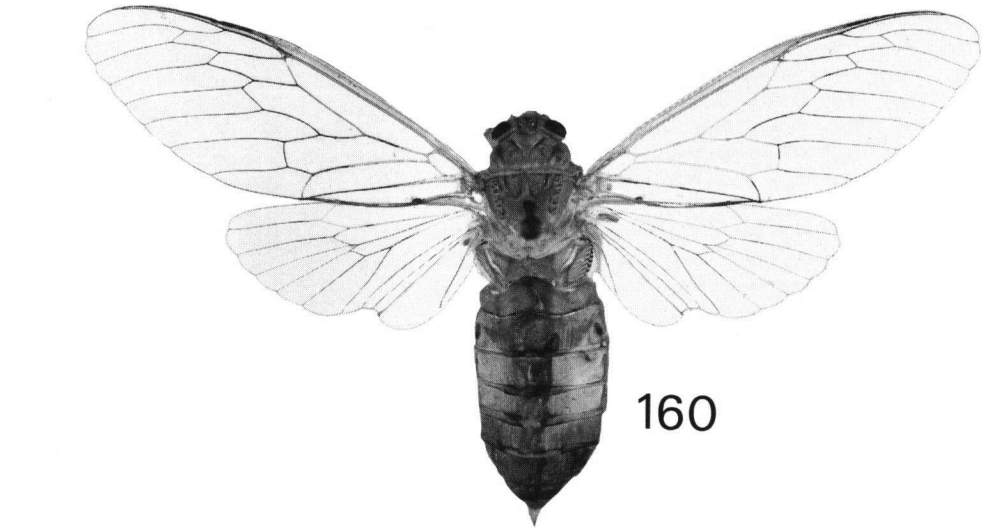
Body of males yellow-brown to red-brown, intensely speckled on Tonga and lightly speckled or unspeckled on Samoa. Body length of Tongan males smaller on average: 22.1-24.8 mm ($\bar{x}$ 23.3 mm ± 1.0) than on Upolu: 21.7-28.5 mm ($\bar{x}$ 25.3 mm ± 1.5), which again slightly smaller than on Tutuila: 23.0-28.1 mm ($\bar{x}$ 25.7 mm ± 1.3). Male tegmen length however, on Tonga only slightly smaller: 23.0-26.8 mm ($\bar{x}$ 25.0 mm ± 1.4), than on Samoa: 23.3-28.9 mm ($\bar{x}$ 25.7 mm ± 1.0). Females dark brown to red-brown. Some females from Tutuila have an unspeckled, light coloured, middorsal band over the whole length of body, as in some specimens of *B. edauberti* (see remark in that description). This band however, less conspicuous than in the *B. edauberti* specimens. Size differences between Samoan and Tongan material in females less obvious than in males.

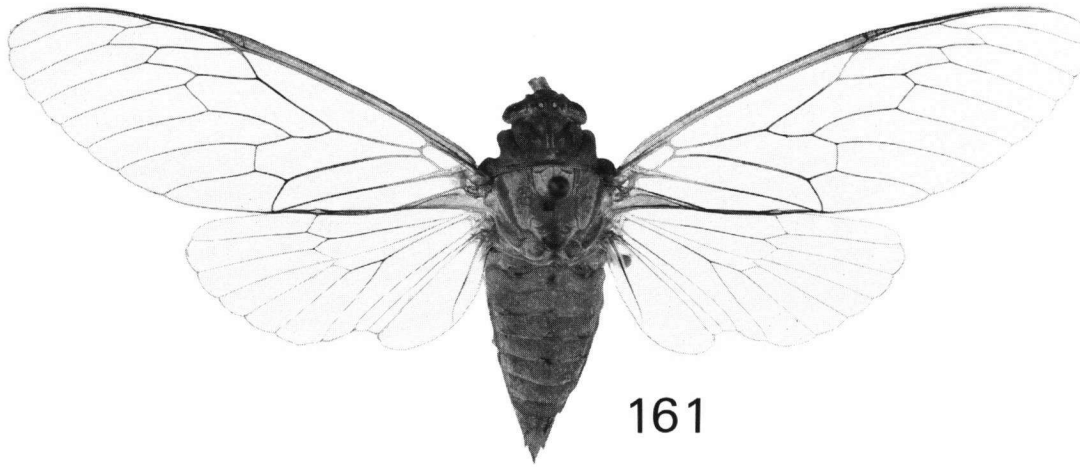
Opercula: Male operculum (fig. 157). Distal part more oblong shaped than in *B. rotumae*. Lateral margin and distolateral edge broadly rounded. Distomedial edge more narrowly rounded. Female operculum (fig. 159) often angular at distolateral edge and slightly curved to body. Lateral and distal margin straight.

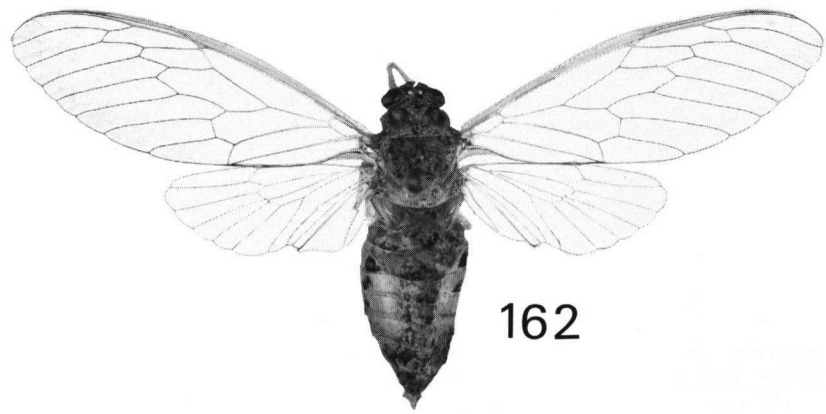
Abdomen: Male abdomen light brown or reddish, intensely speckled. Segmental margins slightly reddened. Lateroventral row of dark spots on segments 3-8 very clear. Male abdomen 1.6-1.8 X as long as head and thorax. Female abdomen grey-brown or castaneous, intensely speckled. Female caudodorsal beak (fig. 158) narrowly rounded at apex.

Male genitalia: Pygofer in lateral view (fig. 153) slender, dorsal margin almost straight, angularly rounded into slightly erect caudodorsal beak. Distal margin straight, broadly rounded into ventral margin of beak. Caudodorsal beak in dorsal view (fig. 154) broad at base, narrowly rounded at apex and shorter than claspers. Bluntly rounded triangular protuberances on lateral lobes of pygofer well developed. Clasper in lateral view (fig. 35) apical part of clasper about halfway its dorsal margin slightly, but angularly bent down to apex. A vague crest running along the greater part of straight dorsal margin. Clasper heel very low and rounded. Margin of clasper hollow forming a wide angle with distoventral margin of clasper base. Clasper base in lateral view much narrower than in *B. rotumae*. Dorsal and ventral margin of clasper base slightly diverging, but almost parallel in lateral view. Clasper in dorsal view (fig. 36) slender at apex and abruptly broadening to base. Aedeagus seen from behind (fig. 155) very narrow between basal lobes, aedeagus pore broad and apically pointed. Aedeagus in lateral view (fig. 156) strongly concave at apex, basal lobes broadly rounded.

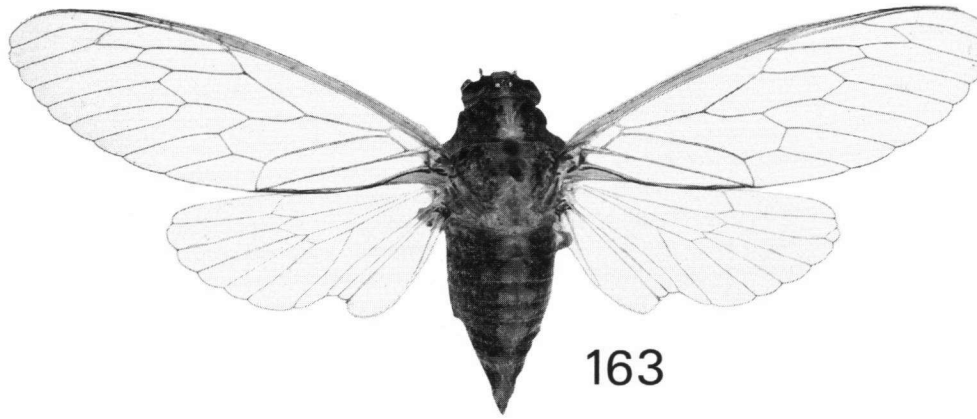
Measurements: Body length ♂: 21.7-28.5 mm ($\bar{x}$ 25.4 mm ± 1.4) ♀: 17.3-22.8 mm ($\bar{x}$ 20.7 mm ± 1.3); tegmen length ♂: 23.0-28.9 mm

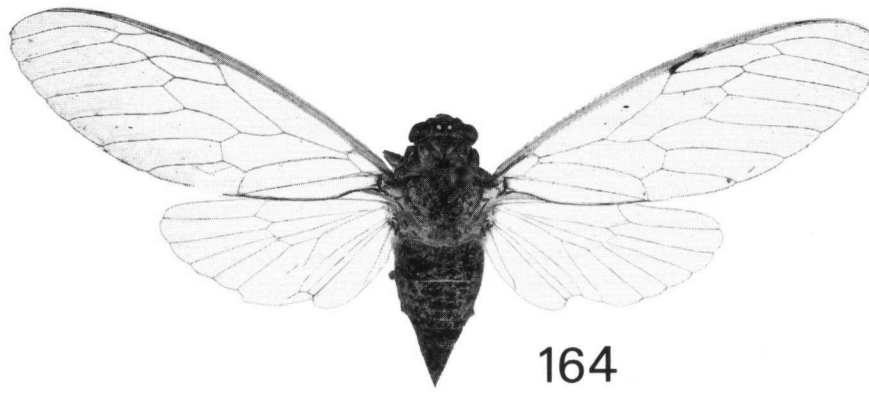






Figs. 160-162. 160, *Baeturia bloetei*, male Sentani; 161, *Baeturia bloetei*, female Negian vill., Torricelli; 162, *Baeturia brandti*, male paratype Kukugai vill.





Figs. 163-164. 163, *Baeturia brandti*, female paratype Mutahi; 164, *Baeturia edauberti*, female Espiritu Santo.

($\bar{x}$ 25.7 mm ± 1.1) ♀: 24.4-31.1 mm ($\bar{x}$ 28.0 mm ± 1.3); pronotum length ♂: 2.5-3.0 mm ($\bar{x}$ 2.8 mm) ♀: 2.9-3.0 mm ($\bar{x}$ 3.0 mm); mesonotum length ♂: 3.9-5.6 mm ($\bar{x}$ 4.7 mm) ♀: 4.9-5.6 mm ($\bar{x}$ 5.1 mm); head width ♂: 4.2-5.0 mm ($\bar{x}$ 4.7 mm) ♀: 4.9-5.5 mm ($\bar{x}$ 5.1 mm): width pronotal collar ♂: 6.1-7.3 mm ($\bar{x}$ 6.7 mm) ♀: 6.8-7.9 mm ($\bar{x}$ 7.2 mm).

Distribution (fig. 148): *B. maddisoni* is widely distributed on the northern islands of the Tonga chain and in American- and Western Samoa, with records from Niuatoputapu, Vava'u, Savaii, Upolu, Tutuila, Manua and Tau.

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